An analysis of the structure of

THE FANTE VERB

with special reference to tone and glottalisation

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M.A. (Edin.), L.-ès-L. (Paris)

University of London Ph.D. Thesis, 1962

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ABSTRACT

The tonal phonemes which occur in utterances containing only one sentence are (i) high tone, (ii) downstep between successive high tones, and (iii) a slight rise towards the end of a prepausal high tone. The phonemic status of the second and third of these is very largely accounted for by low tones becoming high in agreement with adjacent high tones; downstep is basically an automatic feature of the second of two high tones which are separated by one or more low tones, but if a low tone between two high tones becomes high in tonal agreement with the preceding or following high the downstep remains, occurring between the agreeing high and the high with which it is not in agreement. The slight rise towards the end of a prepausal high tone is basically an automatic feature of a high tone which is in pause and is borne by a tone-bearing unit without a final glottal stop, but if a low tone becomes high in pause in agreement with the preceding high it does not have the slight rise. The remaining occurrences of downstep and non-occurrences of the slight rise can be accounted for by the postulation of zero tone-bearing units with low or high tone (which mostly turn out to correspond to non-zero tone-bearing units in other

dialects or languages).

The glottal stop is an accentual rather than a consonantal phoneme. It sometimes represents a separate morpheme which might reasonably be looked upon as a morpheme of intonation, but apart from that it is basically an automatic feature of a tone-bearing unit of the pattern consonant-vowel-consonant which is in pause.

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0 INTRODUCTION

0.1 The language

Fante, although it has its own literature and is commonly looked upon by its speakers as a separate language, is in fact a fellow dialect of Asante Twi and Akuapem Twi, each of which also has its own literature. The language to which all three of these dialects belong is by far the most widely spoken in Ghana; it extends from the north of Ashanti to the coast, and is separated from the eastern and western boundaries of the country by much narrower belts of other languages.

Fante is spoken in a narrow belt along the coast. The present work is based on the study of the colloquial speech of a number of inhabitants of the large village of Abura Dunkwa, where the writer spent seven months. Abura Dunkwa is twenty miles along the Kumasi road from Cape Coast - about twelve miles from the coast and about three miles from the northward boundary of the Fante-speaking area. It is in the State of Abura, one of a number of small states to the east of Cape Coast which together form the Fante Confederation. It was in this area that, according

to tradition, the Fantes settled when they first came to the coast, and it seems to be widely admitted among Fantes in other areas that it is there that the old Fante customs and forms of speech are best preserved. Many say that the best Fante is spoken in the coastal town of Anumabo, but Anumabo is in the Confederation and the speech of the entire Confederation appears to be fairly homogeneous.

The traditional cultural supremacy of the Confederation in the Fante-speaking area, however, is threatened by Cape Coast, which is only a few miles outside its borders. Cape Coast is a much larger town than any in the Confederation, and has played an outstanding rôle in the development of European education in Ghana as a whole. Its speech has made some headway in Abura Dunkwa, particularly among the schoolchildren.

The form of speech studied in this thesis will be referred to as Confederation Fante and the dialect of Cape Coast as Cape Coast Fante. This does not imply any claim that what is presented here is "pure" Fante stripped of any innovations introduced from outside; in the course of the investigation, however, frequent reference was made to the speech of older men when that of the younger men - who made more manageable informants - displayed inconsistencies.

Special importance was attached to the speed of the utterance recorded; only rapid utterances were admitted. It was found that an artificial slowing down for the benefit of the investigator could be very misleading; for instance, the verb has a special form when an object follows, and is always immediately followed by its object or objects if there are any, but if the informant is induced to make a pause between a verb and its object he is unlikely to give that form - unless he is reading.

No mechanical aids were used in recording any of the material.

0.2 The work already done on the language

The Basel Mission at Akropong in Akuapem, which lies just north of the Gã-speaking area round Accra, pioneered the study of the language with their work on Akuapem Twi, the local dialect. The Rev. J. G. Christaller's grammar of 1875, which remains unequalled today, and his dictionary of 1881, of which a second edition, greatly enlarged by J. Schweitzer, appeared in 1933, are both of that dialect. According to their titles, however, these works are concerned with "The Asante and Fante Language, called Twi", their

author having looked upon Akuapem Twi as a suitable basis for a single standard literary language.

Subsequent writers on Akuapem Twi have mostly remained true to the Christaller tradition and have not usually contributed anything new; see, however, the works by E. L. Rapp, Ida C. Ward, and J. Berry listed in the bibliography.

W. E. Welmers' "Descriptive Grammar of Fanti" (1946) is the only analytical work on any other dialect which need be mentioned. It is based on the speech of two informants used by Welmers in America. The dialect is claimed to be that of Anumabo, but is in fact more removed from Confederation Fante than is Cape Coast Fante.

There are today three official orthographies - Akuapem Twi, Asante Twi, and Fante - so that Christaller's hopes of a single standard literary language have not been realised. None of the orthographies give tone marks. The Akuapem Twi orthography preserves Christaller's consonants and vowels with only minor changes; it and the Asante Twi orthography, which replaced it in Ashanti only in relatively recent years, are described in the "Twi Spelling Book". The Fante orthography is described in the "Fante Word List".

Examples given here in any of the orthographies or in Welmers' transcription are enclosed in single quotation

marks, thus: 'ɔreba'. All examples from Christaller are given in the modern Akuapem Twi orthography except where otherwise stated. The names of the dialects are abbreviated as follows: F. - Fante; Conf. F. - Confederation Fante; C. C. F. - Cape Coast Fante; Akp. - Akuapem Twi; As. - Asante Twi.

0.3 The scope of the present work

The present work is undertaken because of the serious inadequacy of previous accounts of the morphophonemic system, particularly where the tones and the glottal stop are concerned; Christaller, for instance, makes a number of statements such as the following about the tones:

(a) (Page 62) "The connected forms [of the verb] (used e.g. after the relative particle 'a' in adjective sentences) are different in tone from independent forms. We observe in most cases, that in the connected form low tones after high tones become middle, and low tones before high tones become high, with the effect that [a] succeeding high tone frequently becomes middle." The underlining is the present writer's.

(b) (Page 63, on the special tone patterns which occur when

successive verbs have the same subject) "An observation that will go pretty far in this respect, is this: Two verbs frequently join in high tones; e.g. instead of 'mekɔ na maba' [¯_____¯], we say 'mekɔ maba' [_____] "I go (with the intention) to come (again)".

The final glottal stop is not even mentioned except by Welmers, and he dismisses it as an optional exponent of his phoneme of "break", which corresponds roughly to the present writer's word boundary (Grammar, p. 21).

As the entire morphophonemic system of the language is too large a field, the study is restricted to the verb. The verb is selected for two reasons:

(a) The verb is much more highly inflected than any other form class, and consequently much richer in morphophonemic alternation.

(b) There are extremely few verb stems which show any signs of having been borrowed from other languages, and there are apparently no compound verb stems at all. Among the noun stems, on the other hand, borrowings and compounds abound. The verb therefore offers a much better opportunity of studying the structure of the simple native stem.

The high degree of inflection and the almost complete absence of borrowing or compounding are obviously related: stems which did not sufficiently conform to the usual structure would not be able to take the usual inflections.

1 THE PHONEMES

1.1 The consonants

1.11 The consonant sounds may be represented as follows:

	labial	alveolar	palatal	velar	glottal
voiceless plosives and affricates	p	t, ts, t^{y}	c, c^{y}	k	ʔ
strong voiced plosives and affricates	b	d, dz, d^{y}	ɟ, ɟ^{y}	g	
weak voiced plosives and affricates	˜b	˜d, ˜dz, ˜d^{y}	˜ɟ, ˜ɟ^{y}	˜g	
nasal plosives	m, m̥	n, n^{y}	ɲ, ɲ^{y}	ŋ	
voiceless oral fricatives	f	s, s^{y}	ç, ç^{y}	h	
voiced oral semivowels	w		j, ɥ		
voiceless nasal fricatives and semivowels			j̊, ɥ̊	h̃	
voiced nasal fricatives and semivowels	w̃		j̃	ɦ̃	
trill		r			

Note:

(a) [$t^{ʷ}$, $d^{ʷ}$, $\tilde{d}^{ʷ}$, $n^{ʷ}$, $s^{ʷ}$, $c^{ʷ}$, $ʒ^{ʷ}$, $\tilde{ʒ}^{ʷ}$, $ɲ^{ʷ}$, $ɕ^{ʷ}$] differ from [t, d, ~d, n, s, c, ʒ, ~ʒ, ɲ, ɕ] in that the former are rounded while the latter are not. The rounded sounds do not have any semi-vocalic offglide. The rounding is much more pronounced in the case of the palatals than in that of the alveolars.

(b) The labials and velars are rounded before back vowels and [w, ɰ].

(c) [r, n] are spread when in pause.

(d) The strong voiced plosives are similar in intensity to the French voiced plosives, and the weak voiced plosives are quite considerably weaker. The writing of the latter with an initial tilde is suggested by the fact that they occur only after homorganic nasals. The distinction between weak and strong is sometimes minimal in the case of the labials and alveolars, as it shows whether a preceding [m] in the case of the labials or a preceding [n] in the case of the alveolars is homorganic by agreement with the plosive or merely by accident. The distinction is never minimal in the case of the palatals and velars as the nasals which occur before them are always homorganic by agreement with them and never by accident.

1.12 The study of the consonant sounds will be confined at first to those sounds and clusters which occur initially but do not include an initial homorganic nasal. The weak voiced plosives and affricates, the nasals [m̥,n̥,ɲ̊], and the glottal stop are thereby excluded.

All the labials other than [w,ʍ] and all the velars sometimes occur before [w,ʍ], but the alveolars and palatals never occur before [w,ʍ]. It is therefore possible to analyse [tʷ,dʷ,nʷ,sʷ,cʷ,ɕʷ,ɲʷ,ɕʷ,ɥ,ç̥] as [t,d,n,s,c,ɕ,ɲ,ɕ, j,ç̥] plus [w] or [ʍ]. [w] and [ʍ] are, of course, postulated after oral and nasal sounds respectively, as that is their distribution elsewhere.

All the labials other than [w,ʍ] sometimes occur before [j,ʃ], but the alveolars, palatals and velars never occur before [j,ʃ]. Now the relation of [ts,dz,c,ɕ,ɕ,ç̥] to [t,d,k,g,h,ɲ̊]is parallel to that of [pj,bj,mʃ,fj] to [p,b,m, f] in that [ts,dz,c,ɕ,ɕ,ç̥], like [pj,bj,mʃ,fj], occur without rounding before back vowel sounds, while [t,d,k,g,h,ɲ̊], like [p,b,m,f], do not occur without rounding before back vowel sounds. It is therefore possible to analyse [ts,dz, c,ɕ,ɕ,ç̥] as [t,d,k,g,h,ɲ̊] plus [j] or [ʃ].

[s] also is like a cluster with [j] in that it occurs without rounding before back vowel sounds, and it is analysed accordingly. There is, however, in the case of [s], no corresponding sound which can be analysed as the [s] minus the [j].

[ʃ], unlike [w], occurs only as the second sound of a cluster while [ɲ] does not occur as a member of a cluster. [ɲ] is accordingly analysed as a subphonemic variant of [ʃ].

The consonant sounds and clusters which occur initially and do not include an initial homorganic nasal may therefore be written as follows in phonemic transcription:

Phonetic transcription				Phonemic transcription			
				without /y/ or /w/	with /y/	with /w/	with /y/ and /w/
p	pj	pw		p	py	pw	
b	bj	bw		b	by	bw	
m	mj̃	mw̃		m	my̆	mw̃	
f	fj	fw		f	fy	fw	
t	ts	t$^{\text{y}}$		t	ty	tw	
d	dz	d$^{\text{y}}$		d	dy	dw	
n		n$^{\text{y}}$		n		nw̃	
	s	s$^{\text{y}}$			sy	sw	
r				r			
k	c	kw	c$^{\text{y}}$	k	ky	kw	kwy
g	ɟ	gw	ɟ$^{\text{y}}$	g	gy	gw	gwy
h	ç	hw	ç$^{\text{y}}$	h	hy	hw	hwy
ñ	ɲ̊	ñw	ɲ̊$^{\text{y}}$	ñ	ñy	ñw	ñwy
	j	w	y		y	w	wy
	ɣ	ʍ	ɣ$^{\text{y}}$		ɣ	ʍ	ʍy

1.13 The consonant sounds and clusters which occur after initial homorganic nasals are the same as those which occur initially when there is no homorganic nasal, except that the strong voiced plosives and affricates are replaced by the corresponding weak sounds. The weak sunds are analysed in

this context as subphonemic variants of the strong sounds.

1.14 The consonant sounds which occur as initial homorganic nasals are [m,ɱ,n,ɲ,ŋ,ɴ̃]. Of these, it has been seen that [m,n,ɲ] occur otherwise than as homorganic nasals, and, moreover, represent the contrasting phonemes /m,n,ŋ/. [ɱ,ŋ,ɴ̃], on the other hand, occur only as homorganic nasals, and are therefore in complementary distribution with [m,n,ɲ]; [ɱ] is accordingly allocated to the phoneme /m/ and [ŋ] and [ɴ̃] to the phoneme /ŋ/. The following table shows the distribution of the various homorganic nasal sounds:

Phonetic transcription				Phonemic transcription			
mp	mpj	mpw		mp	mpy	mpw	
m͡b	m͡bj	m͡bw		mb	mby	mbw	
mm	mmj	mmw		mm	mmy	mmw	
ɱf	ɱfj	ɱfw		ɱf	ɱfy	ɱfw	
nt	nts	nt^{h}		nt	nty	ntw	
n͡d	n͡dz	n͡d^{h}		nd	ndy	ndw	
nn		nn^{h}		nn		nnw	
	ns	ns^{h}			nsy	nsw	
ɲk	ɲc	ɲkw	ɲc^{h}	ŋk	ŋky	ŋkw	ŋkwy
ɲ͡g	ɲ͡ɟ	ɲ͡gw	ɲ͡ɟ^{h}	ŋg	ŋgy	ŋgw	ŋgwy
ɴ̃h	ɲç	ɴ̃hw	ɲç^{h}	ŋh	ŋhy	ŋhw	ŋhwy
ɴ̃ɦ	ɲ̊ʝ	ɴ̃ɦw	ɲ̃^{h}	ŋɦ	ŋɦy	ŋɦw	ŋɦwy
	ɲj	ɴ̃w	ɲ^{h}		ŋy	ŋw	ŋwy
	ɲɲ	ɴ̃w	ɲɲ^{h}		ŋŋ	ŋw	ŋwŋ

No initial homorganic nasal ever occurs before [r]. The initial homorganic nasal is always a prefix, and the only morpheme in the language which begins with [r] is a tense prefix which, as it happens, is never preceded by a homorganic nasal prefix.

1.15 [ʔ], which occurs only finally, will be written /ʔ/. The only consonant sounds which occur finally or before [ʔ] are [m,r,n], and these will be written /m,r,n/ just as they are when they occur initially. Sequences of more than one of the sounds [m,r,n] also occur, but they are never to be interpreted as clusters. They are always kept apart by a very short vocalic glide which is analysed as an exponent of a juncture phoneme which will be written /+/, e.g. /oswɔ̃m+n/ "he served him", /oswɔ̃m+m/ "he served me". It is true that the facts as stated do not justify the postulation of a juncture phoneme, as there is no minimal contrast of juncture in these final sequences. As will be seen, however, minimal contrast does occur in medial sequences.

1.16 The consonants and sequences of consonants which occur initially, as well as those which occur finally, also occur medially, except, of course, that /ʔ/ never occurs medially. The only medial sequences of consonants which cannot thereby be accounted for are made up of consonants or sequences which

occur finally plus consonants or sequences which occur initially, and are of two types:

(a) Sequences containing at least one of the very short vocalic glides which have already been seen to occur in final sequences and which are written /+/, e.g. /oɣɪm+ɯ̃ɔ̃/ "he knows them". In sequences consisting of [m] followed by [ɯ̃] the presence or absence of the juncture phoneme provides a minimal contrast; compare with the above example /mɯ̃ɜ̃/ "shut it", /kofimɯ̃ɜ̃/ "Kofi shuts it".

(b) Sequences in which [m] or [n] is followed by a strong voiced plosive or affricate which is homorganic with it. The only clusters of this type which occur are [mb,mbj, mbw,nd,ndz,nd^{ʲ}]. These are not equivalent to initial clusters as strong voiced plosives and affricates do not occur after initial homorganic nasals. A strong plosive occurs, for instance, in [ɔs^{ʲ}ɔ̃mbɔs^{ʲ}ɔ̃m] "he serves the god", and a weak plosive in [oñɪ̃n^{ᵐ}bɔfːran] "he sees the children"; cf. [s^{ʲ}ɔ̃m] "serve", [bɔs^{ʲ}ɔ̃m] "god", [ñɪ̃] "see", [m^{ᵐ}bɔfɪra] "children". Strong articulation of the voiced plosive or affricate in these circumstances is analysed as a variant of /+/, and will be indicated

accordingly in transcription, e.g. /ɔswɔ̃m+bɔswɔ̃m/; cf. /ɔ̃mbɔfɪran/.

In these sequences the portion following the last or only /+/ is indistinguishable from an initial sound or cluster, and the remainder is indistinguishable from a final sound or sequence.

There are never any phonetic grounds for writing /+/ where [m] or [n] is followed by a sound which is homorganic with it but is not a voiced plosive. The [mp] in [mãmpaanˀɔ̃ɔ̃] "give me bread", for instance, in which the [m] does not represent a homorganic nasal prefix, is indistinguishable from that in [ɔdampanˀɔ̃dˀɔ] "he is lying on the bed", in which the [m] does represent such a prefix; cf. [mãm] "give me", [paanˀɔ̃ɔ̃] "bread", [da] "lie", [mpa] "bed". Apart from this, however, there are always phonetic grounds for deciding how much of any particular medial sequence of consonant sounds is equivalent to an initial sound or cluster.

1.17 In generalised transcriptions /C/ will be written for any consonant other than a homorganic nasal or /ʔ/ or for any cluster which does not include a homorganic nasal or /ʔ/. /N̄/ will be written for any homorganic nasal.

1.2 The vowels

Both oral and nasal vowel sounds occur. The oral vowel sounds may be represented as follows:

	front	central	back
close	i, ɪ		u, ʊ
mid	e, ɛ		o, ɔ
open		ɜ, a	

Note:

(a) [ɪ,ʊ] are slightly more open than the sounds in London English 'pick, put'. There is very little difference in aperture between them and [e,o].

(b) [ɜ] is only slightly more open than [ɛ,ɔ].

Each of the oral vowel sounds has a strongly nasalised counterpart. Weakly nasalised vowel sounds also occur, but these, unlike the strongly nasalised sounds, occur only where the preceding or following consonant sound is nasal; there they are analysable as free variants of the oral vowel sounds. Future references to nasalised vowel sounds will apply to the strongly nasalised sounds only.

[i,e,ɜ,o,u] are taken to be raised counterparts of

[ɪ,ɛ,a,ɔ,ʊ] just as the nasal vowel sounds are nasal counterparts of the oral vowel sounds. This is suggested by the fact that any sequence of two vowel sounds within a stem is either unraised or raised throughout just as it is either oral or nasal throughout, e.g. [ɻ̥ɛɪ] (of liquid) "be clear", [sʰɔ̃ɔ̃] "strain (liquid)".

The vowels may therefore be written as follows in phonemic transcription, using /˜/ for nasalisation and /̥/ for raising:

Phonetic transcription				Phonemic transcription			
				without /̥/ or /˜/	with /̥/	with /˜/	with /̥/ and /˜/
ɪ	i	ɪ̃	ĩ	i	i̥	ĩ	ĩ̥
ɛ	e	ɛ̃	ẽ	e	e̥	ẽ	ẽ̥
a	ɜ	ã	ɜ̃	a	ḁ	ã	ḁ̃
ɔ	o	ɔ̃	õ	o	o̥	õ	õ̥
ʊ	u	ʊ̃	ũ	u	u̥	ũ	ũ̥

Vowel sounds are sometimes twice or even three times their usual length, but are then always analysable as two or three successive occurrences of the same vowel.

In generalised transcriptions /V/ will be written for any vowel.

1.3 The tones

1.31 Each /V/, and also each /C/ other than /ʔ/ which is not prevocalic, is either high or low in pitch in relation to the neighbouring pitch-bearing units. A prevocalic /C/ never differs in pitch from the following /V/ even if it is a /C/ which is physically capable of having a pitch, and therefore belongs to the same pitch-bearing unit as the following /V/. A final /ʔ/ is physically incapable of having a pitch and therefore belongs to the same pitch-bearing unit as the preceding /V/ or /C/.

The high pitches of an utterance are not necessarily all identical. Generally, in relatively short utterances, if a high pitch is followed by one or more low pitches which are followed in turn by a high pitch, the second high pitch is appreciably lower than the first, so that the high pitches descend by a series of steps from the beginning to the end of the utterance, e.g.

/kǫfi̱hwyuhwyekobĩnɑ̃/ Kofi looks for Kobina

[_‾_‾_--]

/kobĩnɑ̃hwyuhwyekǫfi̱/ Kobina looks for Kofi

[_‾‾_‾_-]

(Note that whenever a pitch pattern is indicated by a sequence of horizontal strokes enclosed in square brackets, the strokes show only (i) whether the pitch is low or high, and (ii), where it is high, whether or not it is lower than the preceding high, if any; they are not to be taken as an exact indication of the relative pitch.) Quite frequently, also, a high pitch is lower than the preceding high pitch even though no low pitch intervenes, e.g.

/kɔfi bi syakobina/	[_¯-__--]	Kofi asks Kobina
/obofu/	[_¯-]	messenger
Cf. /obofu/	[_--]	creator

It does sometimes happen, especially in relatively long utterances, that a high pitch is higher than a preceding high pitch, or identical to a preceding high pitch from which it is separated by one or more low pitches, but it appears that there is then always a substantial pause somewhere between the two high pitches. Such a pause is analysed as a sentence boundary. The high pitches thus descend by a series of steps from the beginning to the end of the sentence rather than from the beginning to the end of the utterance.

If the last pitch before a pause is high and there is no final /ʔ/, in some cases that high pitch is not level but

rises slightly towards the end, e.g.

/obeka/ [_--] (with the rise) he will remain
Cf. /obeka/ [_--] (without the rise) he will bite it

The low pitches of a sentence, like the high pitches, are not necessarily all identical; they tend to become lower and lower after each intervening sequence of high pitches, following the general downward drift set by the stepping of the high pitches. Adjacent low pitches, however, are always identical.

1.32 Sentence boundaries within utterances, as marked by the ending of one series of downward drifting high and low pitches and the beginning of a new series, will be indicated by /./ at the end of each sentence of the utterance other than the last.

The slight rise that occurs towards the end of some prepausal high pitches is analysed as a tonal phoneme and will be written /ˋ/. The /ˋ/ will be written with the only vowel of the pitch-bearing unit, or, if there is no vowel, with the only consonant.

A downward step between two high pitches in the same sentence is analysed as a tonal phoneme[1] and will be written /ꜜ/. The /ꜜ/ will be written immediately before the second

1. On the evidence stated it would be equally valid to treat not the downward step but the absence of it as phonemic, but the analysis adopted makes for a much more efficient statement of the morphophonemics; see in particular pp. 56-60 and 196-7.

of the two units with high pitch.

The phonemes /./, /ˋ/, and /ˊ/ together account for all the observed contrasts between different high pitches. The high pitch of a pitch-bearing unit, therefore, may now itself be analysed as a tonal phoneme. This phoneme will be written /ˊ/, the /ˊ/ being placed over the only vowel of the pitch-bearing unit, or, if there is no vowel, over the only consonant. All pitch-bearing units which have /ˋ/ have /ˊ/ also, and will therefore be written with both symbols together, thus: /ˆ/.

Pitch-bearing units will now be termed tone-bearing units, and will be said to have high or low tone according to whether or not they have the phoneme /ˊ/.

The phonemic analysis of the tones is now complete, but the phonemic analysis as a whole has still to take account of the pauses which occur within sentences. These will be indicated by /,/ at the end of each pause-bounded section of the sentence other than the last.

2. REGULAR AUTOMATIC ALTERNATION

2.0 This short chapter is concerned with sequences of sound which do not occur, and with the ways in which they are avoided at morpheme boundaries at which they might otherwise be expected.

2.1 There are the following restrictions on the occurrence of consonants and consonant clusters before vowels:

(a) No labial /C/ ever occurs with /y,ỹ/ but not /w,w̃/ before /i/.

(b) No labial or velar /C/ ever occurs with /w,w̃/ but not /y,ỹ/ before /o,u/, except that /hw,hw̃,w,w̃/ occur before /o/ and /w,w̃/ occur before /u/.

(c) No alveolar /C/ other than /r/ ever occurs without /w,w̃/ before /o,u/.

Now if a morpheme ends with a /CV/ sequence, the final /V/ is frequently replaced with a /V/ identical to the initial /V/ of the following morpheme, e.g.

First part	Second part	Combination
/ɔ́hwye/	/abufíráñ/	/ɔ́hwyaabuˈfíráñ/
"he looks at"	"the child"	"he looks at the child"

The non-occurring sequences are then avoided as follows:

(a) A labial /C/ with /y,ỹ/ but not /w,w̃/ drops the /y,ỹ/ before /i/, e.g.

/opye/ /ɨyɨ̃/ /opiɨyɨ̃/

"he likes" "this" "he likes this"

(b) A labial or velar /C/ other than /hw,h̃w̃,w,w̃/ which has /w,w̃/ but not /y,ỹ/ drops the /w,w̃/ before /o/, e.g.

/ǫgwą/ /ǫgwą́ɨ̃/ /ǫgǫǫgwą́ɨ̃/

"he cuts up" "sheep" "he cuts up the sheep"

(There are no cases in which the replacing /V/ is /u/.)

(c)An alveolar /C/ other than /r/ which has neither /y,ỹ/ nor /w,w̃/ adds /w,w̃/ (according, of course, to whether the /C/ is oral or nasal) before /o/, e.g.

/opáta/ /oñỹíń+ñ/ /opátwoo'ñỹíń+ñ/

"he pacifies" "the chief" "he pacifies the chief"

The replacement of a final /V/ with a /V/ identical to the following /V/ is used merely as an illustration of the circumstances in which the alternations operate; the alternations are not limited to these particular circumstances.

2.2 The only /CC/ (as distinct from /C+C,ⁿC,Cʔ/) sequences

which occur are as follows:

(a) /m/ plus a labial other than /b(w)(y),f(w)(y)/.

(b) /n/ plus an alveolar other than /d(w)(y),r/.

Non-occurring /CC/ sequences are avoided by the insertion of /+/, e.g.

/opãḿ/	/kobf́nă̌/	/opãḿ+ko!bf́nă̌/
"he drives away"	"Kobina"	"he drives Kobina away"
Cf.	/pɔ̃ŋkɔ̌/	/opãḿpɔ̃ŋ!kɔ̌/
	"horse"	"he drives the horse away"

2.3 A high-tone unit following a low-tone unit never occurs without initial /!/ if it is not the first high-tone unit in the sentence. A morpheme adds /!/ whenever it would otherwise transgress this rule, e.g.

/kɔfį̌/ "Kofi"
/kobf́nă̌/ "Kobina"
/hwyuhwyɛ̌/ "looks for"

/kɔfį̌hwyu!hwyɛ́ko!bf́nă̌/
"Kofi looks for Kobina"
/kobf́nắhwyu!hwyɛ́kɔ!fį̌/
"Kobina looks for Kofi"

2.4 A tone-bearing unit never has /ˋ/ or final /ʔ/ unless it is at the end of the sentence or is followed by /,/. A

morpheme drops /ˋ/ or /ʔ/ whenever it would otherwise transgress this rule, e.g.

/ǫ̃ỹĮ̃nʔ/	/kobíñă/	/ǫ̃ỹĮ̃n+kobíñă/
"he knows"	"Kobina"	"he knows Kobina"
/ohwyuhwyĕ/		/ohwyuhwyéko¹bíñă/
"he looks for"		"he looks for Kobina"

2.5 A tone-bearing unit never has both /ˋ/ and final /ʔ/. The /ˋ/ is dropped whenever this rule would otherwise be transgressed; negative sentences, which always have final /ʔ/ (at least when they are non-interrogative), provide examples, e.g.

Affirmative	Negative
/obóhwyĕ/	/orúỹ¹hwyéʔ/
"he will look at it"	"he will not look at it"
/obóhwyéko¹bíñă/	/orúỹ¹hwyéko¹bíñáʔ/
"he will look at Kobina"	"he will not look at Kobina"

2.6 A tone-bearing unit never has two final /ʔ/'s. One /ʔ/ is dropped whenever this rule would otherwise be transgressed; here again negative sentences (see last paragraph) provide examples, e.g.

Affirmative	Negative
/obókóʔ/	/orúỹ̀koʔ/
"he will go"	"he will not go"

3 EXTERNAL SANDHI

3.0 The chief purpose of this chapter is to study the ways in which the shape of a word is conditioned by the shape of the adjacent words, and to propose suitable base forms (not to be confused with citation forms) of the words. This makes possible a transcription in which word boundaries are indicated by spaces and in which all the words are in their base form. The pronunciation of a sentence recorded in such a transcription is then predictable from the transcription, provided the description of the alternations in shape is complete. The transcription is, of course, no longer strictly phonemic as external sandhi is a part of morphophonemics, but if a transcription is desired which shows word boundaries it is necessary to go beyond phonemics.

The transcription which goes beyond phonemics in this way will be termed morphophonemic transcription, and its elements morphophonemic elements. Morphophonemic transcription will be indicated by double oblique strokes, e.g. //syi//. The word boundary is thus a morphophonemic element //space//; since it has no realisation of its own and is manifested only by the part it plays in the realisation of neighbouring morphophonemic elements, it is a zero morphophonemic element.

3.1 The consonants and vowels

3.10 Only words containing a /CV/ sequence will be considered at first. In these, the alternation depends entirely on what follows. All nominal and verbal words are of this type. The different preconsonantal forms are studied first (since in general the preconsonantal forms are fuller than the other forms), and base forms are selected to represent them. The prevocalic forms follow, and the base forms selected for the preconsonantal forms are adjusted so as to make them valid for the prevocalic forms also. Finally the prepausal forms are brought in in the same way.

3.11 If the last /V/ or sequence of adjacent /V/'s of a word is always unraised before certain words with an initial /(N)C/, it is sometimes raised before certain other words with an initial /(N)C/, e.g.

First word	Second word	Combination
/twúú/ "throw"	/kyĭn/ "swing"	/twụ́úkyĭn/ "throw it (a single object) away"
but	/gụ̌/ "pour"	/twúúgụ̌/ or /twụ́ụ́gụ̌/ "throw it (a substance) away, throw them away"

If an /a/ is involved, it is not only raised but also replaced with /e/, e.g.

/fá/ "take"	/syị/ "put"	/fẹ́syị ˈdẹ́ẹ́m/ "put it in the house" (lit. "take put house inside")

The form in which the last /V/ or sequence of adjacent /V/'s is unraised will be taken as the base form of the word, since the /V/'s are generally unraised when the word is in its prepausal form. The base forms of those words with initial /(N)C/ before which unraised /V/'s are sometimes replaced with raised /V/'s will be marked as such by writing // ̣ // under

the //C// of the initial //(N)C//, e.g. //gụ̌//, //ṣyị//. In most cases the words which have to be written this way are words in which the first /V/ is /ị/ or /ụ/, but there are exceptions which will be discussed in later chapters. The three combinations quoted are therefore to be transcribed with word boundaries as //twúú kyīn//, //twúú gị//, //fá ṣyị ꜜdḛ́ḛ́n//.

The replacement of unraised /V/'s with raised /V/'s before a word with initial //(N)C̣// is to some extent optional, though the frequency with which the option is exercised is related to the rapidity of the utterance.

3.12 If a word ends with /r,n,m/ in its preconsonantal form, then in its prevocalic form it adds a final /V/ identical to the initial /V/ of the following word, e.g.

/okyír/	/abufíráñ/	/okyíraabuꜜfíráñ/
"he caught"	"the child"	"he caught the child"

Similarly, if a word ends with a /CV/ sequence in its preconsonantal form, then in its prevocalic form it replaces its final /V/ with a /V/ identical to the initial /V/ of the following word, e.g.

/okyíre/	/abufíráñ/	/okyíraabuꜜfíráñ/
"he showed"	"the child"	"he showed the child"

The number of tone-bearing units is not affected, even when an extra /V/ is added: the /C/ preceding the added /V/ is not a tone-bearing unit in the prevocalic form because it is followed by a vowel, whereas the corresponding /C/ of the preconsonantal form is a tone-bearing unit.

It would be possible to allocate the added or replacing /V/ to the second word instead of the first; this alternative is rejected, however, as it results in word boundaries falling in the middle of tone-bearing units.

The preconsonantal form of the first word will be taken as the base form, so that the two combinations quoted are to be transcribed with word boundaries as //okyír abu‿fíráñ//, //okyíro abu‿fíráñ//. This pair of examples illustrates the non-phonemic nature of the transcription: the two sentences are phonetically identical, but are none the less transcribed differently.

If (i) the preconsonantal form ends with a /Co/ or /Cu/ sequence in which the /C/ is not /r/ and has neither /w/ nor /ẅ/, and (ii) the replacing /V/ of the prevocalic form (as described above) is not /o/ (it cannot be /u/), then /w/ or /ẅ/ is added to the /C/ (/w/ if the /C/ is oral and /ẅ/ if it is nasal), e.g.

/ɓbo/ /ɛ̃ɲɣɪnã̌/ /ɓbwɛɛ̃ɲɣɪ'nã̌/

"he breaks" "waterpot" "he breaks a waterpot"

/ɛbu̧/ /ɛbuɾõõ̌/ /ɛbwɛɛbuɾõõ̌/

"he reaps" "maize" "he reaps maize"

/C/'s which never occur without /w/ or /w̃/ before a back vowel, of course, are not involved; compare with the above:

/ɓtwo/ /ɛbuɾõõ̌/ /ɓtwɛɛbu̧'rõõ̌/

"he buys" "maize" "he buys maize"

Similarly, if (i) the preconsonantal form ends with a /Ci/ sequence in which the /C/ has neither /y/ nor /ɣ̃/, and (ii) the replacing /V/ of the prevocalic form is not /i/, then /y/ or /ɣ̃/ is added to the /C/, e.g.

/ɛfi̧/ /akyĩmfu/ /ɛfyaakyĩmfu/

"he is from" "Saltpond" "he is from Saltpond"

Only labial /C/'s are involved, as no others occur without /y/ or /ɣ̃/ before final /i/ in the preconsonantal form; compare with the above:

/otyi/ /akyĩmfu/ /otyaakyĩmfu/

"he lives at" "Saltpond" "he lives at Saltpond"

The preconsonantal form will still be taken as the

base form, so that the combinations quoted will be transcribed //óbo ẹ̃ỹ̄ị̄‿nạ̌//, //ọbụ ẹbụrọ́ọ̌//, //ótwo ẹbụ‿rọ́ọ̌//, //ọfị akyī́mfu//, //otyi akyī́mfu//.

Some words which, in their preconsonantal form, end with a /CVV/ sequence in which the two /V/'s are identical have a prevocalic form in which each of the two /V/'s is replaced with a /V/ identical to the initial /V/ of the following word, and in which /y/ or /w/ (or /ỹ/ or /w̃/) is added to the preceding /C/ as in final /CV/ sequences, e.g.

/ohwyée/	/abufírán̆/	/ohwyáaabu'fírán̆/
"he looked at"	"the child"	"he looked at the child"
/obóo/	/ẹ̃ỹ̄ị̄nạ̌/	/obwẹ́ẹ̣ẹ̃ỹ̄ị̄'nạ̌/
"he broke"	"waterpot"	"he broke a waterpot"

The preconsonantal form will once again be taken as the base form, e.g. //ohwyée abu‿fírán̆//, //obóo ẹ̃ỹ̄ị̄‿nạ̌//.

Other words which, in their preconsonantal form, end with a /VV/ sequence in which the two /V/'s are identical have a prevocalic form in which (i) the penultimate /V/ is replaced with a close /V/ if it is not already a close /V/, and (ii) the final /V/ is replaced with a /V/ identical to the initial /V/ of the following word, e.g.

/ɓbá¹áá/	/ákyé⁹/	/ɓbá¹ɪá¹ákyé⁹/
"when he came"	"has lasted"	"it is a long time since he came"
/ɻgwyɻ¹ɻɻ/		/ɻgwyɻ¹ɻá¹ákyé⁹/
"when it became cool"		"it is a long time since it became cool"
/ɓbɓ¹ɓɓ/		/ɓbɓ¹ɗá¹ákyé⁹/
"when he hit you"		"it is a long time since he hit you"
/opáa/	/opúũ̃/	/opʃoo¹púũ̃/
"he splits"	"the table"	"he splits the table"
/orúkwyɜ̃ɜ̃/	/abufɪráã̃/	/orúkwyɜ̃aabu¹fɪráã̃/
"he is waiting for"	"the child"	"he is waiting for the child"

In the penultimate position the non-close vowels /e,o,a/ are replaced with the close vowels /i,u,ɪ/ respectively, and and any /˜/ or /ˌ/ is retained. In some of the words which end with a /Caa/ sequence in their preconsonantal form, the /ɪ/ has /ˌ/ although the /a/ has not, e,g,

/gyaa/	/abufɪráã̃/	/gyɻaabufɪráã̃+¹hwyɪ̃/
"stop"	"the child"	"stop beating the child"

This is always the case when the word consists only of a

/(H)Caa/ sequence in its preconsonantal form and is one of those words which has to be written with //̥// under the //C// in its base form to account for the replacement of unraised /V/'s with raised /V/'s at the end of the preceding word. The example quoted, which is /gyaa/ in its preconsonantal form and //g̥yaa// in its base form, is such a word. In such words the writing of //̥// with the //C// in the base form serves to account for the raising of the following vowel as well as the raising of preceding vowels. The remaining words in which //̥// is added to the //i// are all longer than their final //(H)Caa// sequence and all have a raised //V// just before that sequence, so that the same device of writing //̥// with the //C// of the final //(H)Caa// sequence in the base form can be used with these words also, e.g. //ɔbɛ́g̥yáa// "he will stop".

In the case of these words (those which, in their prevocalic form, retain the penultimate /V/ or a close equivalent of it), neither the preconsonantal nor the prevocalic form makes a suitable base form. For this purpose a form will be used which does not in fact occur in any context - a form differing from the preconsonantal form in having final //y,y,y,w,w,ɣ,ɣ,ɣ,ʋ,ʋ// where the preconsonantal form has final /i,e,a,ɔ,u,ɪ,ə̃,ã,ɔ̃,ʊ̃/ (or the corresponding raised /V/) respectively, e.g. //ɓbá¹áɣ// "when he came", //ɓbɔ́¹ɔʋ// "when

"when he hit you", //orúkwyə̃w̃// "he is waiting for". The prevocalic form can then be stated fairly simply in terms of its deviation from the regular prevocalic form of words which have a final //C// in their base form. The application of the usual rules to //ɔ́bá¹áý//, for instance, gives the prevocalic form as "/ɔ́bá¹áyV́/"; from this the actual prevocalic form can be obtained by (i) replacing the "/V/" preceding the "/y/" or "/w/" or "/ỹ/" or "/w̃/" with the appropriate close vowel where it is not already close, and (ii) dropping the "/y/" or "/w/" or "/ỹ/" or "/w̃/".

The combinations quoted are therefore to be transcribed //ɔ́bá¹áý ¹ákyé²//, //opáy o_púúm//, //gyay abufírán ¹hwyi//, etc.

If, in its preconsonantal form, a word ends with a /VVV/ sequence in which the first two /V/'s are identical and are different from the third (in which case the final /V/ will be a close /V/), then in its prevocalic form it (i) replaces its penultimate /V/ with a /V/ identical to its final /V/, and (ii) replaces its final /V/ with a /V/ identical to the initial /V/ of the following word, e.g.

/ɔbwɛ́¹ɛ́ɪ́/ "when he opened it" /ákyé²/ "has lasted" /ɔbwɛ́¹ɪ́á¹ákyé²/ "it is a long time since he opened it"

/ɔbwɛ́¹ɛ́ʊ́/ "when he opened it for you" /ɔbwɛ́¹ʊ́á¹ákyé²/ "it is a long time since he opened it for you"

Words of this type are parallel to the words which are written with final //Vy// or //Vw// or //Vɣ// or //Vʔ// in their base form except in the following respects:

(a) The close /V/ occurs not only as the penultimate /V/ of the prevocalic form but also as the final /V/ of the preconsonantal form, e.g.

Preconsonantal form	Prevocalic form
/ɸbwɸ'ɸɨ/	/ɸbwɸ'ɨV/
Cf. /ɸʁwɣɸ'ɸɸ/	/ɸʁwɣɸ'ɨV/

(b) The close /V/ is not necessarily /i/ after front and central vowels and /u/ after back vowels; the examples /ɸbwɸ'ɸɨ/, /ɸbwɸ'ɸɸ/ already quoted illustrate this.

Morphologically they all consist of words ending with //Vy// or //Vw// or //Vɣ// or //Vʔ// in their base form plus a suffix represented in the preconsonantal form by the final /i/ or /u/, e.g.

With suffix	Without suffix
/ɸbwɸ'ɸɨ/	/ɸbwɸɸkɸtɸ'kʊ̀ʊ́/
"when he opened it"	"when he opened the bag"
/ðkwyð'ðɑ/	/ðkwyððko'bɨnɑ́/
"when he waited for you"	"when he waited for Kobina"

/kyɪnáā¹órú¹wụ́ụ́ị́/ /kyɪnáā¹órú¹wúú/

"this drum that is drying" "a drum that is drying"

It is therefore appropriate that their base forms should be parallel to the base forms with final //VVy//, //VVw//, etc., except that (i) at the second vowel position they should have //y,ẏ,ẏ,w,ẇ,ỿ,ẏ,ẏ,ẅ,ẅ// in place of //i,e,a,o,u,ɪ,ɛ,ā,ɔ,ʊ// (or the corresponding raised //V//) respectively, and (ii) they should have final //y// or //w// or //ỿ// or //ẅ// according to whether the close final //V// is //i// or //u// or //ɪ// or //ʊ// (or the corresponding raised //V//) respectively, e.g. //ɔbwɛ́¹ýý//, //ɔbwɛ́¹ýẃ//, //ókwyɔ́¹ẃẃ//, //kyɪnáā órú¹wụ́ẃý//.

3.13 When one turns to the prepausal forms one is faced with the problem that words appear to have different prepausal forms in different grammatical circumstances; the form which occurs at the end of a negative sentence, for instance, often differs from the one which occurs at the end of an affirmative sentence in having a final /ʔ/, e.g.

Affirmative	Negative
/obɔ́hwyɛ̌/	/orúỿ¹hwyéʔ/
"he will look at it"	"he will not look at it"
/obɔ́hwyéko¹bínǎ/	/orúỿ¹hwyéko¹bínáʔ/
"he will look at Kobina"	"he will not look at Kobina"

/mɨɟɟmaabufíŕáa¹ódyíbá¹ááñ/ "I know the child who brought it"

/mɨɟɟyɨmaabu¹fíŕáa¹ódyíbá¹ááñ?/ "I do not know the child who brought it"

/okásyá/ "he speaks"

/oỹkásyá?/ "he does not speak"

The solution proposed in such circumstances is to analyse one of the contrasting prepausal forms as containing an affix which occurs only in pause; the form which occurs at the end of a negative sentence, for instance, is analysed as containing a glottal suffix. The word containing the affix is to be looked upon as a defective word which has no non-prepausal forms.

The glottal suffix occurs not only with negative sentences but also with conditional clauses, e.g.

/syoóbaa?, yɨ¹bɨ́bɨ́syan/ if he comes, we shall ask him

/yeríɟ¹yó?, kyíro¹óbá?/ we shall not do it unless he comes

Cf. /óbá/ he comes

The suffix occurs, moreover, not only at the end of but also at pauses within the negative sentences and conditional clauses, e.g.

/orúy¹hwyéko¹bínáʔ/ or /orúy¹hwyéʔ, ko¹bínáʔ/	he will not look at Kobina
/syoɓbaaʔ/ or /syeʔ, ɓbaaʔ/	if he comes
/kyíro¹ɓáʔ/ or /kyíreʔ, ɓáʔ/	unless he comes

Only one other affix of this type is postulated; it is termed the interrogative affix and accounts for pairs such as the following:

Non-interrogative	Interrogative
/wẹ́ẽ̃ŋ¹nínísyá/	/wẹ́ẽ̃ŋ¹nínísyáa?/
"they have seen his hand"	"Have they seen his hand?"
/obéɓã̌/	/obéɓáʔ/
"he will come"	"Will he come?"

The interrogative affix is not the only device which can be used to form a yes-or-no question from a statement, and seems, in fact, to be used only with relatively short questions. The writer has not recorded any case in which it is used with a sentence containing a pause, and cannot therefore say whether, like the glottal affix, it occurs at pauses within the sentence with which it occurs.

In the first instance only those prepausal forms will

be considered which contain neither the glottal suffix nor the interrogative affix. Since the manifestation of the interrogative affix is mainly tonal, prepausal forms containing it will be treated not in this section but in the next, which deals with the tones.

3.14 Some words which end with a /Ca/ or /Caa/ sequence in their unraised preconsonantal form replace the final /a/ or /aa/ with /ą/ or /ąą/ respectively in their prepausal form, e.g.

	Unraised preconsonantal form	Prepausal form
	/bịsya/ "ask"	/bịsyą/
	/ỹā/ "gets"	/ỹą̄/
	/hyaá/ "meets"	/hyą̄á̋/
Cf.	/kasya/ "speak"	/kasya/
	/bwaá/ "tells lies"	/bwaá̋/

This is always the case when the word consists only of a /(Ẅ)Ca/ or /(Ẅ)Caa/ sequence in its preconsonantal form and is one of those words which has to be written with //ˌ// under the //C// in its base form to account for the raising of /V/'s at the end of the preceding word. Such words are the examples /ỹā/ and /hyaá/ quoted above; their base forms are //ỹā//, //hyaá//. In these words the writing of //ˌ// with

the //C// of the base form serves to account for the raising of the following vowels as well as the raising of the preceding vowels. The remaining words which end with a /Ca/ or /Caa/ sequence in their preconsonantal/prepausal form and which replace /a/ with /ą/ in pause are all longer than their final /(H)Ca/ or /(H)Caa/ sequence and all have a raised /V/ just before that sequence, so that the same device of writing //ą// with the //C// of the final //Ca// or //Caa// sequence can be used in the base forms of these words also, e.g. //bịṣya//.

Many words which end with /CVC/ in their preconsonantal form, and also a very small number which end with /CV/, have a final glottal stop in their prepausal form, e.g.

Preconsonantal form	Prepausal form
/obónẃúm/ "he will drink"	/obónẃúʔ/
/waábíré/ "he is tired"	/waábíréʔ/

It is only when the final /C/ is /m/, however, that it is retained; /r/ and /n/ are dropped, e.g.

Preconsonantal form	Prepausal form
/waádwor/ "it has increased"	/waádwóʔ/
/waáñũn/ "it has crumbled"	/waáñúʔ/

(The distinction between words with final /r/ and those with

final /n/ is not lost, as the last /V/ is always oral before /r/ and nasal before /n/.) Final //y,w,ỹ,w̃// can also be said to be dropped, although there is no actual form of the word in which they are retained; while //r// and //n// are dropped rather than retained, therefore, //y,w,ỹ,w̃// are dropped rather than replaced with something else, e.g.

Preconsonantal form	Base form	Prepausal form
/waádwoo/	//waádwow//	/waádwó?/
"he has weeded"		
/waáñũũ/	//waáñũw̃//	/waáñú?/
"it has swollen"		

As can be seen from a comparison with the previous set of examples, the distinction is lost (i) between words with final //r// on the one hand and those with final //y// or //w// on the other, and (ii) between words with final //n// on the one hand and those with final //ỹ// or //w̃// on the other.

The fact that many words to which have been attributed base forms with final //y,w,ỹ,w̃// have a glottal stop in their prepausal form just as have many words with final //m,r,n// is, of course, an added justification of these base forms.

The most obvious way of marking the base forms of these words which take /?/ in pause would be to add final //?//, e.g.

//waádwor?//, //waádwow?//. If this were done, however, it would make //?// imply the dropping of any final //C// other than //m//, and that would make it impossible to use //?// in the base forms of words such as /waambiǐ?/ "it did not ripen" in which the /?/ represents the glottal suffix (cf. /waábiǐ/ "it has ripened"), since the glottal suffix never requires the dropping of any final //C//.

An alternative way of marking the base form, at least when it ends with a //CVC// sequence as it nearly always does, is suggested by the fact that a final //CVC// sequence which takes /?/ in pause counts as a single tone-bearing unit for morphophonemic purposes; for instance, //CVC// stems which take /?/ in pause pattern like //CV// stems, while //CVC// stems which do not take /?/ pattern like //CVCV// stems, e.g.

With a //CVC// stem which takes /?/	With a //CV// stem
/pám?/ "sew it"	/hwyǒ/ "look"
/orípám?/ "he is sewing it"	/orúhwyé/ "he is looking"
/orípãmaa!dyĭ/ "he is sewing something"	/orúhwyeko!bínǎ/ "he is looking at Kobina"
/ompám?/ "he is not sewing it"	/oỹhwyé?/ "he is not looking"
/ompãmaa!dyí?/ "he is not sewing anything"	/oỹhwyéko!bína?/ "he is not looking at Kobina"

With a //CVC// stem which does not take /ʔ/	With a //CVCV// stem
/pãm/ "chase it"	/pira/ "sweep"
/oripãm/ "he is chasing it"	/oripirá/ "he is sweeping"
/ompãmʔ/ "he is not chasing it"	/ompiráʔ/ "he is not sweeping"

This suggests analysing those final //CVC// sequences which take /ʔ/ as tone-bearing units, and distinguishing other //CVC// sequences from them by writing a tone-bearing unit boundary before the final //C//. This alternative will be adopted, so that the examples quoted earlier are to be written simply as //waádwor//, //waádwow//. //ˑ// will be used to indicate the tone-bearing unit boundary before a final //C// which does not take /ʔ/, e.g. //pãˑm// "chase it"; cf. //pám// (the tone of a //CVC// unit will always be written, as here, on the //V//) "sew it". Final //CV// sequences which take /ʔ/ will be written with //ʔ//, e.g. //waábíréʔ//.

Some words which end with a //CaC// (but not //CaˑC//) sequence in their base form replace the //a// with /ą/ in their prepausal form if the final //C// is dropped (i.e. if the final //C// is not //m//), e.g.

Preconsonantal form	Base form	Prepausal form
/wę́ękwyar/ "he has cut it"	//wę́ękwyar//	/wę́ękwyą́ʔ/

/wę́ę́ỹãn/ "it has gone stale"	//wę́ę́yãn//	/wę́ę́yą́ʔ/
/wę́ę́fwaa/ "he has cut it up"	//wę́ę́fway//	/wę́ę́fwą́ʔ/
/wę́ę́hw̃ãã/ "he has withdrawn it"	//wę́ę́hw̃ay//	/wę́ę́hw̃ą́ʔ/

These words are comparable with words such as //ḭ́ṣya//, and //ˌ// will therefore be added to the //C// of the //Ca// sequence in their base forms if it is not already there, e.g. //wę́ę́ẉyar//.

There are some words with final //CV·y// in their base form which drop the final //y// in their prepausal form even though it constitutes a tone-bearing unit, e.g.

Preconsonantal form	Base form	Prepausal form
/o̜bę́tyę́ę́/ "he will listen"	//o̜bę́tyę́·y//	/o̜bę́tyę́/

It appears that the final segmental morpheme in these words is always one of the following:

//tyę·y//	listen	//bwę·y//	open
//pwę·y//	come out	//hwę·y//	pour
//twę·y//	take off (pot, etc., from fire)	//swe·y//	take down (load from head)

The base forms of the words will be distinguished by writing a bar through the //y//, e.g. //ɔbɛ́tyɛ́ɨ́ɨ́//.

Words which end with //ˈy// or //ˈw// in their base form are generally the same in their prepausal form as in their preconsonantal form if the tones are disregarded, e.g.

Preconsonantal form	Base form	Prepausal form
/ɔbá¹áá/ "when he came"	//ɔbá¹áˈý//	/ɔbá¹áǎ/
/ɔbɔ́¹ɔ́ɔ́/ "when he hit you"	//ɔbɔ́¹ɔˈẃ//	/ɔbɔ́¹ɔ̌ɔ̌/
/opáa/ "he splits"	//opáˈy//	/opáá/
/ɔ̨bwɛ̨́¹ɛ́ɨ́/ "when he opened it"	//ɔ̨bwɛ̨́¹ýˈý//	/ɔ̨bwɛ̨́¹ɛ́ɪ̌/

Some words which end with //Caˈy// or //Caaˈy// in their base form, however, add /̩/ to each /a/ in the prepausal form, e.g.

/gyaa/ "stop"	//gyaˈy//	/gya̩a̩/
/ɔ̨bɨ̨syá¹áá/ "when he asked"	//ɔ̨bɨ̨syá¹áˈý//	/ɔ̨bɨ̨syá̩¹á̩ǎ/

These are comparable with words such as //bɨ̨syá//, and //̩// will therefore be added to the //C// of the //Ca// sequence in their base forms if it is not already there, e.g. //ɔ̨bɨ̨syá-¹áˈý//.

Words which end with //ˈȳ,ˈw̄// in their base form generally replace the //ȳ,w̄// with /ɪ̌,ʊ̌/respectively in their pre-

pausal form, and add /ˌ/ to it if the preceding /V/ has /ˌ/, e.g.

Preconsonantal form	Base form	Prepausal form
/ǫgwãã́/ "he runs away"	//ǫgwã·ɣ́//	/ǫgwãĭ́/
/ǫgyẽẽ́/ "it becomes clear" (e.g. water)	//ǫgyẽ·ɣ́//	/ǫgyẽĭ́/
/ǫrụswṹṹ́/ "he is pushing"	//ǫrụswṹ·ɣ́//	/ǫrụswṹĭ́/

It will be seen that when the final /V/ of the preconsonantal form is close, the only differences between the preconsonantal and prepausal forms are tonal.

Some words, however, which end with //Cã·ɣ́,Cãã·ɣ́// in their base form are, apart from the tones, the same in their prepausal form as in their preconsonantal form, e.g.

Preconsonantal form	Base form	Prepausal form
/ókã́ˡãã́/ "when he touched it"	//ókã́ˡã·ɣ́//	/ókã́ˡãã́/
/órṹˡnãã́/ "when he got tired"	//órṹˡnã·ɣ́//	/órṹˡnãã́/

Morphologically the final //ɣ́// of these words always represents a suffix, and that suffix is represented by //ɣ́// only after nasal vowels and by //ý// only after oral vowels. Since,

therefore, the prepausal form of these words is merely the nasal equivalent of the prepausal form of words which end with //ˑy// in their base form, and not the true prepausal form of words which end with //ˑȳ// in their base form, their base form can be conveniently distinguished by replacing the //ȳ// with //y//, e.g. //ɓkáˈáˑý//, //ɓrīˈnáˑý//. It is only in these circumstances that an oral //y// will be written finally after a nasal //V//; otherwise //y// and //ȳ// occur finally only after oral and nasal //V//'s respectively.

As might be expected in view of the parallelism with oral forms, there are some words which are exactly the same as those described in the last paragraph except that they add /̣/ to each /ā/ of the final sequence in the prepausal form, e.g.

Preconsonantal form	Base form	Prepausal form
/ɠȳáˈáā/ "when he got it"	//ɠȳáˈáˑý//	/ɠyị̄ˈị̄ị̄/
/ɠgyīˈnāā/ "when he stopped"	//ɠgyīˈnáˑý//	/ɠgyīˈnị̄ị̄/

//ȳ// will, of course, be replaced with //y// in the base forms of these words also, and //̣// will be added to the //C// of the //Ca// sequence if it is not already there, e.g. //ɠỵ̄áˈáˑý//, //ɠgyị̄ˈṇáˑý//.

3.15 This completes the study of the alternations in the consonants and the vowels at the end of words containing a /CV/ sequence. The main cases may be summed up as follows:

Base form	Unraised pre-consonantal form	Prevocalic form	Prepausal form
-(i)i	-(i)i	-(V)V	-(i)i
-(e)e	-(e)e	"	-(e)e
-(a)a	-(a)a	"	-(a)a, -(ə)ə
-(o)o	-(o)o	"	-(o)o
-(u)u	-(u)u	"	-(u)u
-(i̯)i̯	-(i̯)i̯	"	-(i̯)i̯
-(e̯)e̯	-(e̯)e̯	"	-(e̯)e̯
-(o̯)o̯	-(o̯)o̯	"	-(o̯)o̯
-(u̯)u̯	-(u̯)u̯	"	-(u̯)u̯
-(ɪ)ɪ	-(ɪ)ɪ	"	-(ɪ)ɪ
-(ə)ə	-(ə)ə	"	-(ə)ə, -(ə̯)ə̯
-(ɨ)ɨ	-(ɨ)ɨ	"	-(ɨ)ɨ
-(ɨ̯)ɨ̯	-(ɨ̯)ɨ̯	"	-(ɨ̯)ɨ̯
-(ʊ̯)ʊ̯	-(ʊ̯)ʊ̯	"	-(ʊ̯)ʊ̯
-ˈm	-m	-mV	-m
-ˈr	-r	-rV	-r
-ˈn	-n	-nV	-n

Base form	Unraised pre-consonantal form	Prevocalic form	Prepausal form
-(i)i˙y	-(i)ii	-(i)iV	-(i)ii
-(e)e˙y	-(e)ee	-(e)iV	-(e)ee
-(a)a˙y	-(a)aa	-(a)iV, -ɨV	-(a)aa, -(ɐ)ɐɐ
-(o)o˙w	-(o)oo	-(o)uV	-(o)oo
-(u)u˙w	-(u)uu	-(u)uV	-(u)uu
-(ɨ)ɨ˙y	-(ɨ)ɨɨ	-(ɨ)ɨV	-(ɨ)ɨɨ
-(ɐ)ɐ˙y	-(ɐ)ɐɐ	-(ɐ)ɨV	-(ɐ)ɐɐ
-(ɵ)ɵ˙w	-(ɵ)ɵɵ	-(ɵ)ʉV	-(ɵ)ɵɵ
-(ʉ)ʉ˙w	-(ʉ)ʉʉ	-(ʉ)ʉV	-(ʉ)ʉʉ
-(ɪ)ɪ˙ɣ	-(ɪ)ɪɪ	-(ɪ)ɪV	-(ɪ)ɪɪ
-ɛ˙ɣ	-ɛɛ	-ɪV	-ɛɪ
-a˙ɣ	-aa	-ɪV, -ɨV	-aɪ
-ɔ˙ɯ	-ɔɔ	-ɑV	-ɔɑ
-(ɑ)ɑ˙ɯ	-(ɑ)ɑɑ	-(ɑ)ɑV	-(ɑ)ɑɑ
-(ɤ)ɤ˙ɣ	-(ɤ)ɤɪ	-(ɤ)ɤV	-(ɤ)ɤɪ
-ɞ˙ɣ	-ɞɞ	-ɤV	-ɞɪ
-ɷ˙ɯ	-ɷɷ	-ɞV	-ɷɞ
-(ɞ)ɞ˙ɯ	-(ɞ)ɞɞ	-(ɞ)ɞV	-(ɞ)ɞɞ
-(ä)ä˙y	-(ä)ää	-(ä)ɪV, -ɤV	-(ä)ää, -(ɐ)ɐɐ

Base form	Unraised pre-consonantal form	Prevocalic form	Prepausal form
-Vy·y	-VVi, -VV̩	-ViV, -V̩V	-VVi, -VV̩
-Vy·w	-VVu, -VV̩	-VuV, -V̩V	-VVu, -VV̩
-Vw·y	-VVi, -VV̩	-ViV, -V̩V	-VVi, -VV̩
-Vw·w	-VVu, -VV̩	-VuV, -V̩V	-VVu, -VV̩
-Vɣ·y	-VVɪ, -VVɪ̩	-VɪV, -VɪV	-VVɪ, -VVɪ̩
-Vɣ·w	-VVʊ, -VVʊ̩	-VʊV, -VʊV	-VVʊ, -VVʊ̩
-Vɯ·y	-VVɪ, -VVɪ̩	-VɪV, -VɪV	-VVɪ, -VVɪ̩
-Vɯ·w	-VVʊ, -VVʊ̩	-VʊV, -VʊV	-VVʊ, -VVʊ̩
-m	-m	-mV	-m?
-r	-r	-rV	-?
-n	-n	-nV	-?
-ay	-aa	-iV, -i̩V	-a?, -a̩?
-ow	-oo	-uV	-o?
-uw	-uu	-uV	-u?
-ǫw	-ǫǫ	-ǫ̩V	-ǫ?
-ʉw	-ʉʉ	-ʉ̩V	-ʉ?
-ɪɣ	-ɪɪ	-ɪV	-ɪ?
-ɛɣ	-ɛɛ	-ɪV	-ɛ?
-ɑɣ	-ɑɑ	-ɪV, -ɪ̩V	-ɑ?, -ɑ̩?
-ɔɯ	-ɔɔ	-ʊV	-ɔ?
-ɑɯ	-ɑɑ	-ʊV	-ɑ?

Base form	Unraised pre-consonantal form	Prevocalic form	Prepausal form
-V̥ʸ	-VV̥	-V̥V	-V̥ʔ
-e̥ʸ	-ee̥	-i̥V	-e̥ʔ
-o̥ʷ	-oo̥	-u̥V	-o̥ʔ
-o̥ʷ	-oo̥	-u̥V	-o̥ʔ
-e'ʸ	-ee	-iV	-e
-e̥'ʸ	-ee̥	-i̥V	-e̥

Note:

(a) /V/ (underlined /V/) is a /V/ identical to the initial /V/ of the following word.

(b) Wherever two forms are shown, of which one has /a/ or /i/ or /u/ and the other has /ḁ/ or /i̥/ or /u̥/, the form with /̥/ applies if and only if the preceding /C/ or /V/ has //̥// in the base form.

(c) Entries which include bracketed vowels are to be read as two separate entries; for instance, //-(i)i//, /-(i)i/, /-(V)V/, /-(i)i/ is to be read as (i) //-i//, /-i/, /-V/, /-i/ and (ii) //-ii//, /-ii/, /-VV/, /-ii/.

3.16 Separate words of the pattern /V/ or /Vʔ/ are postulated as the distinguishing factor in pairs such as the following:

Without /V(ʔ)/-word	With /V(ʔ)/-word	/V(ʔ)/-word
/ɓbá/ "he comes"	/ɓbaaʔ/ "if he comes"	/aʔ/
/ɻbu/ "he fells it"	/ɻbwáąąʔ/ "if he fells it"	/ąʔ/
/onwdmrɪ/ "he drank it"	/onwdmɪ́ɪ́ɪ́ɪ́ʔ/ "if he had drunk it"	/ɪ̃ʔ/
/ɻwyɻɻ/ "he finishes"	/ɻwyąąąʔ/ "when he finishes"	/ąʔ/
/orɪɓá/ "he is coming"	/orɪ́bɻɻ/ "he is coming!"	/ɻ/

Although there are always two or three identical /V/'s, the first one or two respectively are always analysable as part of the prevocalic form of the preceding word.

Where there is a final /ʔ/ it is always analysable as the glottal suffix, which occurs regularly at the end of conditional clauses.

Words of the pattern /V(ʔ)/ have an oral or nasal /V/ according to whether the final /V/ or /C/ of the prepausal form of the preceding word is oral or nasal. The above examples illustrate. The oral form of the /V(ʔ)/-word will be taken as the base form, so that /onwdmɪ́ɪ́ɪ́ɪ́ʔ/, for instance, will be written //onwdmɪ́ʔ a ʔ//.

Words of the pattern /a(ʔ)/ are raised if and only if

(i) they are followed by pause, and (ii) either the last //V// or the last //C// of the base form of the preceding word is written with //.//. The above examples illustrate. The unraised form of the /V(ʔ)/-word will be taken as the base form, so that /ǫ̣bwǫ́ą̣ʔ/, /ǫwyą̣ǫ́ą̣ʔ/, for instance, will be written //ǫ̣bǫ́ą̣ aʔ//, //ǫwyǫ̣́ǫ̣́ aʔ//.

Words of the pattern /V(ʔ)/ never occur initially in sentences, and never appear to be separated by pause from the preceding word. They are usually followed by pause.

3.17 The ending of the prepausal form of a word which has the glottal suffix differs from that of the corresponding unsuffixed word simply in having final /ʔ/ (with its implications; see pp. 26-7). The ending of the base form of a word which has the glottal suffix will therefore be written simply as that of the corresponding unsuffixed word plus //ʔ//, e.g. //oy̌kásyáʔ// "he does not speak"; cf. //okásyá// "he speaks".

3.2 The tones

3.20 External tonal sandhi affects only those words that contain a /CV/ sequence. The external tonal sandhi of these words differs from the external non-tonal in that it is conditioned by what precedes as well as by what follows.

The alternation according to what precedes will be considered first.

3.2.1 Many words which begin with a high tone when no high tone comes anywhere before them in the sentence add initial /ˡ/ when immediately after a high tone, e.g.

First word	Second word	Combination
/wofa/	/kásya/	/wofakásya/
"uncle"	"speaks"	"Uncle speaks"
but		
/kofi/		/kófiˡkásya/
"Kofi"		"Kofi speaks"
Cf.	/nfˡdáa/	/wofanfˡdáa/
	"his house"	"Uncle's house"
and		/kofinfˡdáa/
		"Kofi's house"

By regular automatic alternation, of course, all words which begin with a high tone when no high tone comes anywhere before them in the sentence add initial /ˡ/ when a high tone does occur somewhere before them in the sentence and they are immediately preceded by a low tone, e.g.

/núwofa/	/kásya/	/núwofaˡkásya/
"his uncle"	"speaks"	"his uncle speaks"

/nɑ̀wofa/ /nɪ́ dáɪ̀/ /nɑ̀wofa nɪ́ dáɪ̀/

"his uncle" "his house" "his uncle's house"

It is therefore possible to bring the words which add initial /ˈ/ even after a high tone within the scope of the rule of regular automatic alternation by postulating an initial zero tone-bearing unit with low tone in their base forms. This unit will be written //://, so that the examples quoted will be transcribed //wofa :kásya//, //kofi :kásya//, //wofa nɪ́ dá·ɣ//, //kofi nɪ́ dá·ɣ//, //nɑ̀wofa :kásya//, //nɑ̀wofa nɪ́ dá·ɣ//.

It is almost exclusively with verbs and nouns that this initial //:// occurs, and in these it occurs only in grammatical contexts in which prefixes of person or gender[1] do not occur. In the case of the verbs, one such context is that in which a noun subject precedes, e.g. //kofi :kásya// "Kofi speaks"; cf. //okásya// "he speaks". In many other Niger-Congo languages, particularly the Bantu languages, it is quite common for the prefix of person or gender (or "class") to occur in such contexts, so that it seems that historically the initial //:// is a reduced form of a prefix of person or gender.

3.22 In most words which begin with a /V/ or /H/ and in which the /V/ or /H/ has low tone when after a pause or a low tone, the /V/ or /H/ has high tone when after a high tone, e.g.

1. The prefixes of person or gender which occur in the verb are //mɪ-// "I", //i-// "you (singular)", //o-// "he, she, it, they (inanimate)", //ye-// "we", //wo-// "they (animate)".

/obɔ́hwyé/ /abufírã̌/ /obɔ́hwyáábu¹fírã̌/

"he will look at" "the child" "he will look at the child"

/mbufírã̌/ /obɔ́hwyémbu¹fírã̌/

"the children" "he will look at the children"

Where the tone-bearing unit following the /V/ or /H/ is also high, it has initial /¹/ just as it would have by regular automatic alternation if initial low /V/'s and /H/'s did not become high after high tones, e.g.

/obɔ́twɔ́/ /nsyã̌/ /obɔ́twɔ́¹syã̌/

"he will buy" "liquor" "he will buy liquor"

The form which occurs after a pause or a low tone will be taken as the base form, so that the examples quoted will be written //obɔ́hwyé abufírã̌//, //obɔ́hwyé mbufírã̌//, //obɔ́twɔ́ nsyã̌//.

There are some words with initial low-tone /H/, however, which do not take high tone on that unit after a high tone. In all of these the /H/ is morphemically a verbal prefix indicating the negative, e.g. /kǫfi̱n¹twɔ́hwyii?/ "Kofi does not buy anything". All of these words, moreover, are indicative, and correspond to subjunctive words in which the /H/ has high tone, e.g. /fbaa¹dyi̱ntyi̱nãkǫ¹fi̱n¹twɔ́hwyi¹I/ "Why doesn't Kofi buy anything?". In the subjunctive words,

the tone-bearing unit following the high-tone /N/ invariably has initial /^{1}/ if it has high tone (as the example illustrates), so that the negative prefix is analysable as having a final //:// (zero tone-bearing unit with low tone; see pp. 57-8). Now in the indicative words it is possible to attribute the failure of the low-tone /N/ to take high tone after a high tone to this same final //://, and to transcribe the base forms of these words accordingly, e.g. //kɔ̀fí n:twó hwyii^{2}//. The general rule can then be restated as follows so as to cover these words: in words which in their base form begin with a //VCV// or //NCV// (but not //N:CV//) sequence in which the initial //V// or //N// has low tone, the initial /V/ or /N/ has high tone when after a high tone.

The term tonal agreement will be used for the replacement of a low tone with a high tone where the replacement is conditioned by an adjacent high tone. In the type of tonal agreement just described, the agreement is with a preceding high tone, but in other types which will be seen presently the agreement is with a following high tone.

3.23 The following are the most important of the tonal alternations which are conditioned by what follows the word rather than by what precedes it and which operate in sentences which do not contain the interrogative affix: is pro-

(a) Most words which have high tone on their final unit when not in pause add /ˋ/ to that unit when they are in pause (provided there is no final /ʔ/; see pp. 26-7), e.g.

Preconsonantal form	Base form	Prepausal form
/orikyiré/	//orikyiré//	/orikyirȅ/
"he is showing it"		
/obéká/	//obéká//	/obékȁ/
"he will remain"		

(b) Most words which, when they are not in pause, (i) have high tone on the penultimate unit, and (ii) have low tone on the final unit, have high tone on the final unit when they are in pause, e.g.

Preconsonantal form	Base form	Prepausal form
/orikásya/	//orikásya//	/orikásyá/
"he is speaking"		
/obéka/	//obéka//	/obéká/
"he will bite it"		
/yẹ́ẏ́hyáa/	//yẹ́ẏ́hyáa//	/yẹ́ẏ́hyáá/
"we are to meet"		
/ọbọ́twṵ́m/	//ọbọ́twṵ́·m//	/ọbọ́twṵ́m/
"he will be able"		
/orípãm/	//orípãm//	/orípã́mʔ/
"he is sewing it"		

Preconsonantal form	Base form	Prepausal form
/onáʔityuu/	//onáʔityuw//	/onáʔityúʔ/
"he walks"		
/ǫbǫ́hur/	//ǫbǫ́hur//	/ǫbǫ́húʔ/
"it will boil"		
/ǫbę́tyę́ę/	//ǫbę́tyę́˙ɣ//	/ǫbę́tyę́/
"he will listen"		

(The last example is at least in accordance with the alternation although it does not actually illustrate it, the final unit being completely dropped in the prepausal form.)

The tones which occur when the word is not in pause will be taken as the tones of the base form in every case.

It will be noted that alternation (a) sometimes has the effect of maintaining a tonal distinction which would otherwise be obliterated in pause by alternation (b):

Base form	Prepausal form
//obéká// "he will remain"	/obékǎ/
//obéka// "he will bite it"	/obéká/

In parallel pairs in which the prepausal forms have final /ʔ/, of course, alternation (a) has no effect (see pp. 26-7),

so that the tonal distinction actually is obliterated, e.g.

Base form	Prepausal form
//obésyáy// "he will dance""	/obésyá?/
//obésyay// "he will scoop it up"	/obésyá?/

The tonal agreement of alternation (b) is the second type in which the agreement is with a preceding high tone.

There are a few exceptional words which fail to add /ˋ/ (in the case of alternation (a)) or /ˊ/ (in the case of alternation (b)) in the prepausal form, e.g.

Preconsonantal form	Prepausal form
/nfńsyá/ "his hand"	/nfńsyá/
/dée/ "that, as, like"	/dée/

These words, however, are best considered along with words containing the interrogative affix (see pp. 41-2).

3.24 The interrogative affix is manifested by the following modifications of the prepausal form of the last word in the sentence:

(a) Any /ˋ/ or /ˊ/ which the last word has by virtue of alternation (a) or (b) respectively as described above is removed, e.g.

Without affix		With affix
Base form	Prepausal form	
//obéká//	/obéká/	/obéká/
"he will remain"		"Will he remain?"
//obéka//	/obéká/	/obéka/
"he will bite it"		"Will he bite it?"

The writer cannot, unfortunately, claim that /obéká/ "Will he remain?" is indistinguishable from /obéká/ "he will bite it", as his informants always uttered questions formed with the affix of interrogation much more loudly than the corresponding statements.

(b) Any /ʔ/ is removed, e.g.

Without affix		With affix
Base form	Prepausal form	
//obésyáy//	/obésyáʔ/	/obésyá/
"he will dance"		"Will he dance?"
//obésyay//	/obésyáʔ/	/obésya/
"he will scoop it up"		"Will he scoop it up?"
//ǫ̃ỹĩm//	/ǫ̃ỹĩmʔ/	/ǫ̃ỹĩm/
"he knows"		"Does he know?"

(c) If, in the absence of the affix, there is a final /CV/ sequence with /ˊ/ but not /ˋ/, the final /V/ is doubled;

of the resulting two units, however, only the first has /ˈ/, e.g.

	Without affix	With affix
Base form	Prepausal form	
//ɛ̨kwya nfísyá//	/ɛ̨kwya[1] nfísyá/	/ɛ̨kwya[1] nfísyáa/
"you have cut his hand"		"Have you cut his hand?"
//wɛ̨ɛ̨bwɛ̨́ɨ́//	/wɛ̨ɛ̨bwɛ̨́/	/wɛ̨ɛ̨bwɛ̨́ɛ̨/
"he has opened it"		"Has he opened it?"

Two quite different types of word are involved here, and are illustrated by the first and second examples respectively. First, there are words such as //nfísyá// which were mentioned above as being exceptions to the rule that words with a final high tone add /ˋ/ in pause; second, there are words which, in their base form, have //ɨ́//[1] as the final tone-bearing unit and have high tone on the penultimate unit.

(d) If, in the absence of the affix, there is in the base form a final high tone unit of the pattern //CVC// in which the second //C// is not //m//, so that there is in the prepausal form a final /CVˀ/ sequence with high tone, then in the case of certain words the /V/ is doubled as under

1. See pp. 47-8.

(c) above, e.g.

Without affix		With affix
Base form	Prepausal form	
//ɕ̃ɳ̃ nɨ́yɨr//	/ɕ̃ɳ̃ˈnɨ́yɨʔ/	/ɕ̃ɳ̃ˈnɨ́yɨi/
"you have seen his wife"		"Have you seen his wife?"

The irregularity of the few exceptional words which fail to add /ˋ/ or /ˊ/ in the prepausal form may therefore be described by saying that their prepausal form is as if it included the affix of interrogation, which is manifested by the removal of any added /ˋ/ or /ˊ/. It is therefore desirable to mark the base forms of these exceptional words in the same way as the base forms of words containing the affix of interrogation. The affix of interrogation is, of course, manifested even when it is added to one of the exceptional words (see (c) above), so that the same mark would then have to be written twice.

The fact that the affix of interrogation involves the loss of the characteristically prepausal features /ˋ/ and /ʔ/ suggests analysing the affix as a zero suffix and attributing the loss of the prepausal features to the fact that they are no longer fully prepausal. The fact that the affix often gives the sentence a final low tone which it would not

otherwise have, moreover, suggests analysing it as having low tone. It is therefore analysed as a suffix //-:// (a zero tone-bearing unit with low tone). The examples quoted under (a) and (b) above are thus to be transcribed //obéká://, //obéka://, //obésyáy://, //obésyay://, //ǫ̃ỹ̃m://. Similarly, the examples quoted of words which are irregular in that their prepausal form is as if it included the suffix of interrogation will be transcribed //nfísyá://, //dée://. The example quoted under (c) above containing both one of these words and the suffix of interrogation will be transcribed //ɛ̨ɨ̨wya nfísyá:://. The other example under (c) is adequately transcribed as //wɛ̨ɛ̨bwɛ̨'ɤ:://.

The words described under (d) are analysed as the consonant-closed counterparts of the //nfísyá:://-type words described under (c), which always have a vowel as the last segmental phoneme in their base form. They differ, however, in not having any final //:// in the absence of the interrogative suffix, so that the sentences quoted are to be transcribed //ɛ̨ɛ̃ɛ̨ nfyír// (the statement) and //ɛ̨ɛ̃ɛ̨ nfyír::// (the question); cf. //ɛ̨ɨ̨wya nfísyá:// (the statement) and //ɛ̨ɨ̨wya nfísyá::// (the question). Grammatically, most words of both types consist of a possessive prefix plus a nominal expression indicating an inalienable possession, usually a part of the body or a relative;

the corresponding word without the possessive prefix does not have the final //://, e.g. //nǐ́syá:// "his hand" but //nsyá// "hand". The absence of any examples with final //m// is most probably fortuitous; no cases were noted of words with final //m// which might have been expected to conform but which did not.

Other dialects have an interrogative particle //a// in place of the interrogative suffix //-://, so that it seems that historically the suffix //-:// is a reduced form of the particle //a//. Compare the //:// which is postulated at the beginning of words and which seems to be historically a reduced form of a prefix of person or gender.

3.25 There are two further irregularities of external tonal sandhi. First, certain words require that the preceding word, if it has low tone on its final tone-bearing unit, should replace that low tone with high tone, e.g.

First word	Second word	Combination
/pi̱i̱/	/hwyen/	/mbufírápi̱ ǃhwyen/
"much, many"	"look at him"	"many children look at him"
Cf.	/hwyin/	/mbufírápi̱i̱hwyin/
	"beat him"	"many children beat him"

The unit which becomes high takes initial /ˡ/ if the preceding unit is high, e.g.

First word	Second word	Combination
/nɛ́ɛ́gya/	/hwyen/	/nɛ́ɛ́ˡgyáhwyen/
"his father"	"looks at him"	"his father looks at him"
Cf.	/hwyin/	/nɛ́ɛ́gyahwyin/
	"beats him"	"his father beats him"

The fact that these irregular words require that the preceding word should end with a high tone suggests analysing them as having an initial zero tone-bearing unit with high tone in their base form. The examples quoted will accordingly be written //mbuffrá pii fhwye'n//, //mbuffrá pii hwyi'n//, //nɛ́ɛ́gya fhwye'n//, //nɛ́ɛ́gya hwyi'n//.

It is almost exclusively with verbs that this initial //ˡ// has been found to occur, and in these it resembles initial //:// which was seen earlier[1], in that it occurs only in grammatical contexts in which prefixes of person do not occur. One such context, which is illustrated in the examples given above, is that in which a noun subject precedes; compare with these examples //ɔ́hwye'n// "he looks at him", //ohwyi'n// "he beats him". As a general rule, if a verb has initial //:// or //ˡ//, corresponding verbs with a personal prefix have low or high

1. See p. 58.

tone respectively on that prefix, e.g.

Without personal prefix	With personal prefix
//kofí :kásya//	//okásya//
"Kofi speaks"	"he speaks"
//nééégya !hwye·n//	//ɔhwye·n//
"his father looks at him"	"he looks at him"
//mã ɔ́mbíra !mbɔ́hwyé//	//mã ɔ́mbɔ́hwyé//
"let him come and look" (lit. "give he-come come-look")	"let him come and look" (lit. "give he-come-look")

Grammatically, then, initial //:// and initial //!// are alternants of a single prefix, and the selection of high or low tone depends on the same circumstances as it does in the case of personal prefixes.

The postulation of initial //!// to account for the replacement of low tone with high tone at the end of the preceding word implies that the replacement is analysed as a case of tonal agreement. This is the first case to be described in which the agreement is with the following unit (which is, of course, the //!//) and not with the preceding unit.

3.26 The remaining irregularity is similar to the one just described in that low tone is replaced with high at the end

of the word preceding the word boundary, but in this case the low is not replaced with high if it is immediately preceded by a high tone which is part of the same word, e.g.

First word	Second word	Combination
/ọ̀wụ̀/	/a?/	/ọ̀wụ́a?/
"he dies"	"if"	"if he dies"
/obaaa/	/a?/	/obaáá?/
"he came"	"if"	"if he had come"
	/beyéee/	/obaaábe!yéee/
	"came and did it" (lit. "came-did")	"he came and did it" (lit. he-came came-did")
/bera/	/béfá?/	/berábéfá?/
"come"	"come and get it"	"come and get it" (lit. "come come-take")

but

/ɔba/	/a?/	/ɔbaa?/
"he comes"	"if"	"if he comes"
	/béyé/	/ɔba!béyé/
	"comes and does it"	"he comes and does it" (lit. "he-comes comes-does")

Where this type of sandhi occurs, moreover, it is attributable

to the grammatical status of the boundary itself rather than to either of the words which meet at the boundary; it regularly applies, for instance, at the points at which serial verbal constructions are divisible into sections each containing one finite verb, and also before final particles such as //a?// "if", but never occurs between subject and verb or verb and object or object and object. It is therefore analysed as manifesting a boundary which is intermediate between the word boundary and the sentence boundary. This boundary will be termed the phrase boundary and will be indicated by a space plus a vertical stroke, so that the examples quoted will be transcribed //ǫwụ |a?//, //obaa·y |a?//, //obaa·y |beyée·y//, //bira |béfar//, //ɔ́ba |a?//, //ɔ́ba |béyé//. In the last two examples the word before the boundary is not such as to permit any manifestation of //|//; //|// is written, however, just as a word boundary is written at every instance of a particular grammatical boundary if a word boundary is manifested at that grammatical boundary whenever it is possible to decide whether it is manifested or not.

3.27 The postulation of the zero tone-bearing unit //:// leads to a drastic reduction in the number of tonal phonemes. The postulation of final //:// makes /ˋ/ unnecessary, and that of initial //:// makes /ˊ/ unnecessary; those occurrences of

/ˡ/ which separate two high tones of the same word have yet to be disposed of, but it will be seen that in the verbal word at least they can all be readily disposed of in the same way as those which separate two high tones of different words, namely by the postulation of intervening low-tone units, zero or otherwise.

On the other hand, it emerges clearly that the list of tonal, or rather accentual, phonemes should be extended, at the expense of the list of consonant phonemes, by the inclusion of /ˀ/. The two main functions of /ˀ/ may be summed up as follows:

(a) To indicate, in the prepausal form of a word, that that word has a final tone-bearing unit of the pattern //CVC//.

(b) To represent the glottal suffix, which is always attached to a sentence or clause rather than to a word. It differs fundamentally from other suffixes or particles which occur at the end of a sentence or clause in that it occurs not only at the end of the sentence or clause but also at pauses within it. It might therefore be better to talk of a glottal intonation than of a glottal suffix.

4 PHONEMICALLY OR MORPHOPHONEMICALLY CONDITIONED ALTERNATION WITHIN THE VERBAL WORD

4.0 From this point onwards the study is restricted to those words which consist of or contain a piece which is analysable grammatically as a finite verb. Such words will be termed verbal words. The distinction between verbs and verbal words is useful because of certain affixes (i) which are grammatically equivalent to independent words, or (ii) which are not characteristic of verbal words as distinct from other types of words. By the same approach one might distinguish between nouns and nominal words in English; for instance, 'John's' in 'John's here' would be a nominal word consisting of a noun plus a suffix which was grammatically equivalent to a verb. As will be seen, the phonemically conditioned alternation which the affixes of the verbal word involve is largely independent of whether the affix is part of the verb or not; compare the situation in English nominal words, in which the phonemically conditioned alternants of the short form of 'is', which is not part of the noun (e.g. /ʤonz hɪə/, /dɪks hɪə/, /greisəz hɪə/), are the same as those of the possessive suffix, which is part of the noun (e.g. /ʤonz hat/, /dɪks hat/, /greisəz hat/).

Since what is usually described as phonemically conditioned alternation is stated here in terms of the morphophonemic transcription which was developed in the chapter on external sandhi (see p. 28), it is more properly described here as morphophonemically conditioned alternation. This must not, of course, be confused with morphemically conditioned alternation, which is dealt with in the next chapter.

The morphophonemic transcription is itself further developed, chiefly by the addition of more zeros such as //!// (zero tone-bearing unit with high tone). This has the effect that many morpheme alternants which would otherwise have to be treated as morphemically conditioned can be treated as merely morphophonemically conditioned; compare the addition of //!// at the beginning of words on p. 69. On the other hand, the morphophonemic transcription is not further developed by more non-representation of sandhi phenomena; this would be possible and would have the effect that many morphophonemically conditioned morpheme alternants would be eliminated altogether, but this advantage, it is felt, would be outweighed by the increased complexity of the reading rules. The zeros added in this chapter, therefore, unlike those added in the last, are redundant for the purpose of the phonemic interpretation of the morphophonemic transcription.

4.1 Non-tonal alternation in prefixes

4.11 It was seen that in external sandhi the last //V// of a word, if unraised in the base form, was optionally raised before a word with an initial //(ʷ)C// which had //ˌ// with the //C//, and that if the //V// was //a// it was replaced with /e/. With verbal prefixes containing a //V// there is no option - the //V// of the prefix is invariably raised before a stem of which the initial //C// has //ˌ// and, moreover, invariably unraised before a stem of which the initial //C// does not have //ˌ//. This is the case whether a //ʷ// intervenes between the prefix with //V// and the stem or not. Examples are:

Stem-initial //C// without //ˌ//	Stem-initial //C// with //ˌ//
//:ábíˑʔ//	//:ɕ̀bʲíˑʔ//
"has ripened"	"has become black"
//:rúhuw//	//:rʲ̀ʰúʰuw//
"is drying"	"is blowing"
//:bóhwyi//	//:bʲ̀ʰóʰwyʲ̀n//
"will beat"	"will snatch"
//yem:bá?//	//yɛ̀ʲ:ʲá?//
"we do not come"	"we do not get"

It will be noted that where the prefix has a //C// before the

//V//, //́// is added to the //C// as well as to the //V//. This represents a further contrast with external sandhi, and means, of course, that preceding unraised vowels are replaced with raised vowels before the prefixes just as they would be directly before the stem. A corollary of this is that when a number of //CV-// prefixes occur together, they are either unraised or raised throughout, e.g.

Stem-initial //C// without //́//	Stem-initial //C// with //́//
//mɪribékyé//	//mɪribédyí//
"I am going to divide it"	"I am going to eat it"

With prefixes, as with words, the unraised form will be taken as the base form, so that the base forms of the prefixes in the examples quoted will be //á-//, //rí-//, //bó-//, //ve-//, //ri-//, //bé-//.

4.12 All verbal prefixes of the pattern //CV-// in which the //V// is //i// or //u// have (i) //i// before all //(Ɱ)CV// sequences in which the //C// has //y// but not //w//, and all //(Ɱ)CV// sequences without //y// or //w// in which the //V// is //i,e,a//, and (ii) //u// before all //(Ɱ)CV// sequences with //w// and all //(Ɱ)CV// sequences without //y// or //w// in which the //V// is //o,u//, e.g.

//mɪ̃rifar//
"I am taking it"

//yerihyuw//
"we are burning it"

//mɪ̃rufuw//
"I am climbing it"

//yeruḥwę́ˀ≠//
"we are opening it"

Since it is //i// which occurs before //(ʜ)Ca// sequences without //y// or //w//, which can be regarded as neutral in respect of frontness and backness, the form with //i// will be taken as the base form, so that the base forms of the prefixes in the examples quoted will be //mɪ̃-//, //ri-//.

Similarly, all verbal prefixes of the pattern //CV-// in which the //V// is //e// or //o//, with the exception of //ye-// "we" and //wo-// "they", have //e// and //o// before the same sequences as take prefixes with //i// and //u// respectively, e.g.

//yebɛ́far//
"we shall take it"

//yebɛ́hyuw//
"we shall burn it"

//yebɔ́kɔ́r//
"we shall go"

//yebɔ́ḥwę́ˀ≠//
"we shall open it"

Once again the form of the prefix which occurs before //(ʜ)Ca// sequences without //y// or //w//, in this case the form with //e//, will be taken as the base form, so that the base form of the prefix in the examples quoted will be //bɛ́-//.

//ye-// and //wo-// are the only //CV-// prefixes which have

//y// or //w//, so that the front/back alternation of vowels can be said to apply regularly to all //CV-// prefixes without //y// or //w//.

4.13 In //N(:)-// prefixes the //N// is, as has been seen already, //m// or //n// or //ŋ// according to the following //C// (the distribution of the three alternants is given in full on p. 13), e.g.

//om:bá?//	he does not come
//waan:twó?//	he did not fall
//oŋ:ya'f?//	he is not ill
//mā ńkór//	he is to go (lit. "give he-go")

The form with //n// will be taken as the base form, so that the base forms of the prefixes in the examples quoted will be //n:-//, //ń-//.

4.14 If a prefix with a preconsonantal form of the structure

//CV-// occurs before a //V//, the //V// of the prefix is replaced with a //V// identical to the following //V//, just as in external sandhi, e.g.

Prefix (preconsonantal form)	Without prefix	With prefix
//mɪ-// "I"	//:ɓa// "has come"	//maɓa// "I have come"
//ye-// "we"		//yaɓa// "we have come"
//wo-// "they"		//waɓa// "they have come"

There is only one prefix with a preconsonantal form of the structure //V-// which ever occurs before a //V//, and that is the prefix //o-// "he, she, it". It has the prevocalic form which it would have if its preconsonantal form had an initial //C// consisting of the semivowel corresponding to //o//, namely //w//, e.g.

Prefix (preconsonantal form)	Without prefix	With prefix
//o-// "he, she, it"	//:ɓa// "has come"	//waɓa// "he (etc.) has come"

The prefixes //wo-// "they" and //o-// "he (etc.)" thus fall together in their prevocalic form. The preconsonantal form will, of course, be taken as the base form in every case.

4.15 The prefixes which occur, beginning with those farthest

from the stem, are then as follows if tonal distinctions (including the presence or absence of //://) are disregarded:

(a) The personal prefixes //mĩ-, i-, o-, ye-, wo-//. //i-// never occurs along with the tense prefix //a-// (see (b) below).

(b) The tense prefixes //ri-, a-, n-, be-//. //n-, be-// never occur along with the negative prefix (see (c) below).

(c) The negative prefix //n-//.

(d) The ingressive prefixes //be-, ke-//.

The grammatical functions of the various prefixes will be discussed in greater detail in the chapter on the grammatical categories.

4.2 Non-tonal alternation in suffixes

4.21 Before suffixes of the pattern //-ˈC// in which the //C// is //r,n,m//, the form of a morpheme is the same as the preconsonantal form which occurs in external sandhi, e.g.

Suffix	Without suffix	With suffix
//-ˑm// "me"	//orúhwye// "he is looking at"	//orúhwyeˑm// "he is looking at me"
	//okyfˑr// "he caught"	//okyfˑr+ˑm// "he caught me"
	//orúkwyõ̃w̃// "he is waiting for"	//orúkwyõ̃õ̃ˑm// "he is waiting for me"

Before the suffix //-ˑn̄// "inside", the form of a morpheme is the same as the special raised preconsonantal form which sometimes occurs in external sandhi before words of which the initial //(w̃)C// has //ˌ//, e.g.

Suffix	Without suffix	With suffix
//-ˑn̄// "inside"	//obóhwyé// "he will look"	//obóhwyę́ˑn̄// "he will look inside"

This suffix will accordingly be written with //ˌ//, thus: //-ˑn̨//.

4.22 Before suffixes of the pattern //-ˑC// in which the //C// is //y,w,ỹ,w̃//, a morpheme generally has a special form similar to the prevocalic form of external sandhi. If the morpheme ends with a front //V// or //VV// in its base form, it replaces that //V// or //VV// with the corresponding back //V// or //VV// before //w,w̃//, and, if the //C// preceding the //V// or //VV//

does not have //y,ɣ// and is not //r//, it adds //y,ɣ// to that //C//. (according, of course, to whether it is oral or nasal). Similarly, if the morpheme ends with a back //V// or //VV// in its base form, it replaces that //V// or //VV// with the corresponding front //V// or //VV// before //y,ɣ//, and, if the //C// preceding the //V// or //VV// does not have //w,ʷ// and is not //r//, it adds //w,ʷ// to that //C//. Also, if the morpheme ends with //a// or //aa//, that is replaced with //o// or //oo// before //w,ʷ//. Examples are:

Suffix	Without suffix	With suffix
//-ˑw// "you"	//ohwyée//	//ohwyóoˑw//
	"he looked at"	"he looked at you"
	//óhwye//	//óhwyoˑw//
	"he looks at"	"he looks at you"
	//ǫbíʂya//	//ǫbíʂyoˑw//
	"he asks"	"he asks you"
//-ˑɣ//	//ǫʂwúɣɣ//	//ǫʂwíɣˑɣ//
	"he bewailed"	"he wept"
//-ˑy//	//ǫʂwúrǫ//	//ǫʂwúrẹˑy//
	"he feared"	"he became afraid"
	//obóo//	//obwéeˑy//
	"he hit"	"he hit it"

Suffix	Without suffix	With suffix
//-ˑw// "you"	//ǫ̣bi̱ṣyáa//	//ǫ̣bi̱ṣyóoˑw//
	"he asked"	"he asked you"
	//obwáa//	//obóoˑw//
	"he helped"	"he helped you"
Cf. //-ˑy//	//ǫ̣bi̱ṣyáa//	//ǫ̣bi̱ṣyáaˑy//
	"he asked"	"he asked"

If the morpheme which precedes the suffix has a final //C// in its base form, it generally adds final //i// before //y,ȳ// and final //u// before //w,w̄//, and has (i) //˜// with the added //V// if the preceding //C// is nasal, and (ii) //ˌ// with the added //V// if the preceding //V// has //ˌ//, e.g.

Suffix	Without suffix	With suffix
//-ˑy//	//obiˑr//	//obíˑriˑy//
	"it becomes ripe"	"it became ripe"
//-ˑw// "you"	//ókyir//	//ókyiruˑw//
	"he catches"	"he catches you"
//-ˑȳ//	//ópãm//	//opãmíˑȳ//
	"he sews it"	"he sewed it"
//-ˑw̄// "you"	//ǫ̣tw̱ṵˑm//	//ǫ̣tw̱ṵˑmu̱ˑw̄//
	"he coped"	"he coped with you"

This special form which morphemes have before //y,w,ȳ,w̄// in

these circumstances will be termed the semiprevocalic form.

Morphemes which have final //y,w,ɣ,ɯ// in their base form, however, do not generally occur in this semiprevovalic form, but have their preconsonantal form before suffixes of the pattern //-ˑC// in which the //C// is //y,w,ɣ,ɯ// just as before those in which the //C// is //r,n,m//, e.g.

Suffix	Without suffix	With suffix
//-ˑw// "you"	//obéháy// "he will disturb"	//obéháaˑw// "he will disturb you"
//-ˑy//	//okáˑy// "he remembers"	//okáaˑy// "he remembered"
//-ˑɯ// "you"	//orúkwyɔ̃ɯ// "he is waiting for"	//orúkwyɔ̃ɔ̃ˑɯ// "he is waiting for you"
Cf. //-ˑm// "me"	//orúkwyɔ̃ɯ// "he is waiting for"	//orúkwyɔ̃ɔ̃ˑm// "he is waiting for me"

In all the recorded instances in which the semiprevocalic form does occur, the //C// of the suffix is //y,ɣ// and the final //C// of the preceding morpheme is //w,ɯ//, e.g.

Suffix	Without suffix	With suffix
//-ˑy//	//waáfow// "it has got wet"	//ofówiˑy// "it got wet"
//-ˑɣ//	//waáfɔ̃ɯ// "he has got thin"	//ofówiˑɣ// "he got thin"

The semiprevocalic form does not necessarily occur in these circumstances, as is shown by one of the examples quoted in the next paragraph. It is not possible to tell from the material recorded, however, whether the selection of the semiprevocalic or the preconsonantal form is free or conditioned.

Before the suffixes //-˙ý, -˙ý̂// "this", the semiprevocalic or preconsonantal form of a morpheme is raised just as is the preconsonantal form of a morpheme before the suffix //-˙ŋ̩// "inside", e.g.

Suffix	Without suffix	With suffix
//-˙ý// "this"	//maába// "I have come"	//ńtyį nã máá!bę̧˙ý// "it is because of that that I have come" (lit. "therefore that this-I-have-come")
	//orúwuw// "it is drying"	//mã órú!wų̧ų̧́˙ý// "this one that is drying"

These suffixes will accordingly be written with //̥//, thus: //-˙ỵ̥, -˙ỵ̥́//.

4.23 It can be seen from the above account that a morpheme

always has a form with a final //V// when it is followed by a suffix of the pattern //-·C// in which the //C// is //y,w,ỹ,w̃//. The //C// of the suffix is //y,w// or //ỹ,w̃// according to whether this //V// is oral or nasal, except that //y// occurs to the exclusion of //ỹ// after //ã//, e.g.

Oral //V//	Nasal //V//
//okyíri·y//	//ogwyínĩ·ỹ//
"he caught it"	"he thought"
//ǫ̨t̨wíi̯·y//	//ǫ̨s̨wĩ̯·ỹ//
"it departed"	"she wept"
//okyíru·w//	//ǫ̃ñ̨ãnw̨̃·w̃//
"he caught you"	"he saw you"
//oríro·w//	//oswṹmõ·w̃//
"he called you"	"he sent you on an errand"
but //okáa·y//	//okãã́·y//
"he bit it"	"he touched it"

(//y// has none the less a nasal pronunciation after //ã//; the reason for writing //y// rather than //ỹ// in the base form of the word was explained in the chapter on external sandhi, pp. 49-50). The form of the suffix which occurs when the //V// is oral will be taken as the base form, so that the base forms of the suffixes in the examples quoted will be //-·y, -·w//.

4.24 The suffixes which occur are/then as follows if tonal distinctions are disregarded:

(a) The suffixes //-ˈy// "this", //-ˈn// "that", //-ˈm// "inside", which do not necessarily form part of the verbal word, e.g.

In verbal word	Not in verbal word
//mā órú hwyéˈý//	//mā órúhwye kobínéˈý//
"this one that is looking at it"	"this one that is looking at Kobina"
//ṣwọˈḿ// "grasp it"	//ṣwọ kọfí nwúˈm// "grasp Kofi"
(lit. "grasp inside")	(lit. "grasp Kofi his-inside")

(b) The personal suffixes //-ˈm// "me", //-ˈw// "you (singular)", //-ˈn// "him, her", and the tense suffix //-ˈy//.

The grammatical functions of the tense suffix //-ˈy// will be discussed in the chapter on the grammatical categories. The remaining suffixes are outside the verb as distinct from the verbal word.

4.3 Non-tonal alternation in reduplication

An affix is recognised which consists of reduplication of the stem. It is realised basically by the occurrence

before the simple stem of its own preconsonantal form, but there are the following complications which justify the postulation of internal rather than external sandhi between the two occurrences of the stem:

(a) If the unreduplicated stem has a final oral //C// (not //ʰC//), that //C// is dropped in the first half of the reduplicated stem, e.g.

Unreduplicated stem	Reduplicated stem
//kyír// "catch"	//kyikyír// "tie up"
//fuw// "climb"	//fufúw// "climb repeatedly"
//kwyurów// "scratch"	//kwyurókwyurow// "scratch repeatedly"

If the //C// is //w//, the preceding //V// will be //o// or //u//; if this //V// is preceded in turn by a //C// with //y// but not //w//, or by a //Cir// sequence, the //o// or //u// is replaced with //e// or //i// respectively in the first half of the reduplicated stem, e.g.

//hyuw// "burn"	//hyihyúw//
//kyirów// "write"	//kyirékyirow//

If the unreduplicated stem has a final nasal //C// (not //ʰC//), it is replaced with //N// in the first half of the redu-

plicated stem, e.g.

//ɖɖṹm// "go out" (of light or fire)	//ɖɖnɖɖṹm//
//hirã́m// "yawn"	//hirã́ỹhirã́m//

(b) If the unreduplicated stem consists of only one tone-bearing unit and that unit consists of or begins with a //CV// sequence in which the //C// has //y// but not //w//, or a //CV// sequence without //y// or //w// in which the //V// is //i// or //a// (it is never //e//), the first half of the reduplicated stem has //i// in place of the original //V//. Similarly, if the unit consists of or begins with a //CV// sequence in which the //C// has //w//, or a //CV// sequence without //y// or //w// in which the //V// is //o// or //u//, the first half of the reduplicated stem has //u// in place of the original //V//. The //i// or //u// does not have //~// unless immediately preceded or followed by a nasal. Examples are:

//hyé// "put on"	//hyihyé//
//ɖyɛɖ// "accept"	//ɖyiɖyɛ́ɖ//
//ka// "bite"	//kiká//
//ká// "touch"	//kiká//
//ɳwyar// "cut"	//ɳwyuɳwyár//
//bó// "strike"	//bubó//

//ɻwyɻw// "rub"	//ɻwyɻɻwyɻ́w//
//fyó́w// "pinch"	//fifyó́w//
//kway// "rub"	//kukwáy//

(Note the loss of //y// or //w// by regular automatic alternation in the last two examples; see pp. 23-4.)

(c) If the unreduplicated stem has the pattern //Caa// in which the //C// has //y//, the first part of the reduplicated stem has //e// in place of each //a//, and, if the initial //C// is labial, drops the //y//, e.g.

//byaá// "lay across"	//beó́byaa//
//ɻyaá// "meet"	//ɻyeɻ́ɻyaa//
//ɻyaá// "steal"	//ɻyeɻ́ɻyaa//

Similarly, if the unreduplicated stem has the pattern //Caa// in which the //C// has //w// but not //y//, the first part of the reduplicated stem has //o// in place of each //a//, e.g.

//bwaá// "tell lies"	//boó́bwaa//
//swaá// "carry"	//swoó́swaa//

(Note the loss of //w// by regular automatic alternation in the first example; see pp. 23-4.) There do not

appear to be any stems of the pattern //Caa// without //y// or //w//.

If the unreduplicated stem is of the pattern //Cãã//, the first half of the reduplicated stem adds a final //N//, e.g.

//ʂwãã́// "imitate" //ʂwɔ̃́ɲʂwãã//

The //Cãã// stems appear to be the only //CVV// stems which occur with nasal //V//'s.

(d) If the unreduplicated stem has the pattern //CuCa// in which the second //C// is //r,n// or //m//, then in the first half of the reduplicated stem the //a// is replaced with //o//, e.g.

//ʂuɽá// "put on" //ʂuɽóʂuɽa//

If the unreduplicated stem has the pattern //CVnã// or //CVmã//, //N// is added at the end of the first half of the reduplicated stem, e.g.

//swũmã́// "send on an errand" //swũmṍɲswũmã//

//ʐyʈnã́// "stand" //ʐyʈnɛ̃́ʐyʈnã//

The //CVnã// and //CVmã// stems are the only //CVnV// and //CVmV// stems which occur with final nasal //V//'s.

(e) If the unreduplicated stem has the pattern //CV·C// and the final //C// is nasal, then in the first half of the reduplicated stem the final //C// is replaced with a //V// identical to the preceding //V//, and //H// is added after it, e.g.

//pā·ń// "drive away"	//pāā́pā·n//
//pɪ·ɪ́// "groan"	//pɪɪ́pɪ·n//
//dā́·ɣ// "turn"	//dāā́dā·ɣ//

The replacement of //a// with //o// as described under (c) and (d) above would be expected to apply equally to //Ca·C// stems in which the initial //C// had //w// but not //y//, so that the reduplicated form of //gwā·ɣ́// "run away", for instance, would be //*gwwā·ɣ́gwā·ɣ//; the materials recorded, however, contain no examples.

(f) If the unreduplicated stem has the pattern //CV(H)CV(C)// and the first and second //C//'s are identical, or differ only in that the second has //y// or //w// while the first has not, the reduplicated stem is sometimes merely in accordance with the alternations already seen, e.g.

//hwyuhwyé// "look for"	//hwyuhwyéhwyuhwye//
//twūntwṓw// "sell (a number of articles)"	//twūntwṓntwūntwōw//

Optionally, however, and more commonly, the //(N)C// at the point of contact of the two halves is dropped and the following //V// replaced with a //V// identical to the preceding //V//, e.g. //hwyuhwyéehwye//, //twũntwõõntwõw//. All reduplicated stems of this type are reduplications of reduplications, but as it is unnecessary to refer to this fact in describing the alternant of the affix of reduplication which occurs, this alternant is still morphophonemically rather than morphemically conditioned.

It will be observed that the alternation of vowels in reduplication is similar to that which occurs in prefixes, e.g.

//worikiká//	they are biting it repeatedly
//worukukwáy//	they are rubbing it repeatedly
//yobé!hyéehyaa//	they will meet
//wobó!swũmõõswũmã mbuffírá·ñ//	they will send the children on errands

4.4 Tonal alternation in prefixes, suffixes, and reduplication

4.41 If the final //:// of the negative prefix is disregarded, each of the prefixes and suffixes so far recognised consists of a single tone-bearing unit, and has either low or high tone.

If a stem which begins with the tone pattern low-high when a low tone prefix precedes is preceded by a high tone prefix, the low tone between the two high tones becomes high in agreement with the following high tone, and is separated by //ˡ// from the preceding high tone, e.g.

Low tone prefix	High tone prefix
//orikyiré//	//oβéˡkyíré//
"he is showing it"	"he will show it"

Similarly, if a stem which ends with the tone pattern high-low when a low tone suffix follows is followed by a high tone suffix, the low tone between the two high tones becomes high in agreement with the following high tone, and is separated by //ˡ// from the preceding high tone, e.g.

Low tone suffix	High tone suffix
//ɣoβyáa·m//	//ɣoβyéˡɛ·ɱ//
"they met me"	"they met together"
(suffix //-·m// "me")	(suffix //-·ɱ// "inside")

This can be summed up by saying that, within the word, //HLH// is regularly replaced with //HˡHH//. This is yet another case of tonal agreement, and will be referred to as inter-high tonal agreement; it is, it may be added, the most important

case in which the agreement is with the following rather than the preceding unit. The form of the stem which does not show inter-high tonal agreement will, of course, be taken as the base form.

4.42 It was seen in the chapter on external sandhi that if a word began with a low tone //H// representing the negative prefix, that //N// was irregular in that it did not agree in tone with a preceding high tone. Reasons were given for analysing the prefix as having a final //://, and the failure to agree was put down to this //:// (see pp. 59-60). Now this analysis is supported by the fact that there are two types of failure in inter-high tonal agreement which can also be accounted for by this //:://:

(a) In all but two tenses, the negative prefix has low tone in the indicative, and it retains its low tone when preceded by a high tone prefix and followed by a stem beginning with a high tone or by a high tone prefix, e.g.

//orún:ˈtwɔ́ʔ//	he will not buy it
//orúŋ:ˈkɔ́twɔ́ʔ//	he will not go and buy it

(b) A stem which begins with the pattern low-high retains its initial low tone when preceded by the high tone form

of the negative prefix which occurs in subjunctive verbs, e.g.

Indicative	Subjunctive
//waam:firé kofi//	//íbyɛ̄ adyí ńtyi nā wáám:fi'ré
"he did not call Kofi"	kofi// "Why did he not call Kofi?"

In each case the //:// makes it possible to account for the absence of agreement by saying that there is no //HLH// sequence; there is only a //HLLH// sequence.

4.43 In the section dealing with non-tonal alternation in suffixes, the suffixes considered all had base forms of the pattern //-'C//. The only suffixes considered, however, were those which could be recognised as suffixes without reference to the tones; there are others which must be recognised as suffixes because low tones become high in inter-high tonal agreement with them[1], e.g.

Without suffix	With suffix
//óhwye kofi |a?//	//ó'hwyéwó'm |a?//
"if he looks at Kofi"	"if he looks at them"
//orúko kumáásyí://	//orú'kóhó//
"he is going to Kumasi"	"he is going there"

1. Inter-high tonal agreement not being recognised as a feature of external sandhi; //orúhwye míbá// "he is looking at my child", for instance, is realised as /orúhwye'míbá/ and not as "/orú'hwyémíbá/".

They fall into two groups:

(a) Those which are alternatives to suffixes of the pattern //-ˑC//. Each suffix of the pattern //-ˑC// has such an alternative which differs from it in having a final //V//, as follows:

//-ˑC// suffix	//-CV// suffix
//-ˑý̨// "this"	//-y̨í//
//-ˑn̄́// "that"	//-nw̄ú//
//-ˑń̨// "inside"	//-n̨ṵ́//
//-ˑm, -ˑḿ// "me"	//-mɨ, -mɨ́//
//-ˑw, -ˑẃ// "you (sing.)"	//-wu, -wú//
//-ˑn, -ˑn̄́// "him, her"	//-nw̄u, -nw̄ú//
//-ˑy, -ˑý// (tense)	//-yi, -yí//

Examples are:

//n̄ṭyí nā́ máá¹bé́ˑý// //n̄ṭyí nā́ máá¹bé́yí//

"that is why I have come"

(lit. "therefore that this-I-have-come")

//ɣo̱hyé́¹é́ˑn̄́// //ɣo̱hyé́¹é́n̄ú//

"they met together"

//orúhwyoˑw// //orúhwyewu//

"he is looking at you"

The //-ˑC// and //-CV// suffixes are analysed as free variants. The form with //V// will be taken as the base form, as it is not always possible to predict from the //C// what the //V// will be.

(b) The remainder, of which only the following have been noted:

//-ȳēˑȳ, -ȳếˑẙ//	us
//-h̄ūˑm, -h̄ū́ˑḿ//	you (plural)
//-w̄ōˑw̄, -w̄ṓˑẃ//	them
//-hó//	there
//-há//	here
//-h̄ȳí́n//	where (interrogative)

The last three of these, like //-yḭ̄, -nw̄ú, -mṵ́//, are sometimes separated from the verbal word, e.g. //orúko ḵo̰fḭhó// "he is going to Kofi".

It can be seen that the only two of the suffixes of this group which are of the pattern //-CV// differ from the //-CV// suffixes of group (a) in having a //C// which never occurs in final position. It is therefore possible to tell simply from the shape of the base form of a //-CV// suffix whether or not it has a //-ˑC// variant.

4.44 It will have been noted that the personal suffixes and

the tense suffix //-yi// occur both with low tone and with high tone. They always have high tone in the following circumstances:

(a) When the phrase boundary //|// follows, e.g.

Not before //|//	Before //|//
//fhwye·n//	//f¹hwyé·ń |a²//
"you look at him"	"if you look at him"

(b) When they are immediately followed by //!// (zero tone-bearing unit with high tone) without any word boundary intervening; in this context, however, //!// always represents a tonal affix (the nominal suffix) which has not yet been introduced, and cannot, therefore, be properly included in the transcription at this stage. The following example shows it in brackets at the point at which it will eventually be written:

Not before //!//	Before //!//
//okyfrewɔ·w//	//ɦwáná nɑ́ ókyf¹réwɔ́·w̋(!)//
"he showed them"	"Who was it that showed them?"

(c) When (i) they are in pause, (ii) they are immediately preceded by a high tone, and (iii) they are not followed by //:// (zero tone-bearing unit with low tone, which in

this context always represents the interrogative suffix), e.g.

Not after high tone	After high tone
//okyíreW̃ʊ̃'W̃//	//okyiréW̃ʊ̃'W̃//
"he showed them"	"he shows them"
but	
//okyíreW̃ʊ̃'W̃://	//okyiréW̃ʊ̃'W̃://
"Did he show them?"	"Does he show them?"

They do not have high tone in any other circumstances, so that the low tone and high tone forms are analysable as phonemically conditioned alternants. The low tone forms will be taken as the base forms.

4.45 Before the tonal alternation which accompanies reduplication can be stated it is necessary to discuss the tone-bearing status of //W̃//. It was seen in the chapter on external sandhi that many //CVC// sequences counted as single tone-bearing units for morphophonemic purposes and were accordingly analysed as tone-bearing units. Now all //(C)VW̃// sequences which occur within the unreduplicated or reduplicated verb stem count as single tone-bearing units in the same way; //CVW̃CV// stems such as //kấfu// "praise", for instance, pattern in the same way as //kásya// "speak". These

//(C)V́H// sequences, therefore, are also to be analysed as tone-bearing units, so that //kā́mfu//, for instance, will be written simply as //kā́mfu//. This, of course, entails writing //ˈ// before every //H// which constitutes a tone-bearing unit and is preceded by a //V//, e.g. //ordˈy:kór?// "he will not go".

4.46 The tonal alternation involved in reduplication is then as follows:

(a) If the unreduplicated stem consists of a single tone-bearing unit, the reduplicated stem has the pattern //LH//, e.g.

//bó// "strike"	//bubó//
//kā́// "touch"	//kikā́//
//ɕwyar// "cut"	//ɕwyuɕwyā́r//

As these examples show, lexical distinctions of tone are suppressed.

(b) If the unreduplicated stem consists of two tone-bearing units and (i) the second of these does not contain a //CV// sequence, or (ii) the first contains //i// or //u// and the second contains a //CV// sequence in which the //C// is //r,n(w̃)// or //m//, or (iii) the second contains a //CV// sequence beginning with the same //C// as the first unit, with or

without an extra //y// or //w//, the reduplicated stem has the pattern //LHLL//, e.g.

//ʂyɐ̀ɐ́// "bury"	//ʂyɐ̀ɐ́ʂyɐ̀ɐ́//
//ɓwɐ́ˑɣ// "open"	//ɓwɐ́ɐ́ɓwɐ́ˑɣ//
//dā́ˑɣ// "turn"	//dāā́ndāˑɣ//
//kyiré// "show"	//kyirékyire//
//swūmā́// "send"	//swūmṓnswūmā́//
//hwyuhwyé// "look for"	//hwyuhwyéehwye//

Here again lexical distinctions of tone are suppressed.

(c) If the unreduplicated stem consists of two tone-bearing units and the second of these contains a //CV// sequence which is not of one of the types listed under (b) above, the reduplicated stem has the pattern //HLLL//, e.g.

//kásya// "speak"	//kásyakasya//
//nā́ntyuw// "walk"	//nā́ntyinā́ntyuw//

Here there is no loss of lexical distinction of tone, as none ever occurs in unreduplicated stems of this structure.

4.5 Tonal affixes

4.50 Two accentual affixes, namely the glottal suffix and the tonal suffix of interrogation, have already been discussed in the chapter on external sandhi (pp. 39-41, 56, and 63-8) and need not be considered further here.

4.51 A tonal affix is postulated to account for the following features of words which occur at the end of relative and certain other clauses as compared with the corresponding words which occur at the end of main clauses:

(a) If a word has low tone on its final unit at the end of a main clause, the corresponding word which occurs at the end of a relative clause has high tone in place of the low tone, and has //ˈ// at the beginning of that high tone if the preceding tone is high, e.g.

Main clause	Relative clause
//orɪba//	//ɦwáná na órɪˈbá//
"he is coming"	"Who is it that is coming?"
//orɪba odá·ɣ nwɑ̰̀·m̰//	//ɦwáná na órɪba odá·ɣ nwɑ̰̀ˈm̰//
"he is coming into the house"	"Who is it that is coming into the house?"

Main clause	Relative clause
//owo ṣyịḳá pịị//	//ñwáná nã ówó ṣyịḳá pịí//
"he has a lot of money"	"Who is it that has a lot of money?"

(b) If a word has a final unit of the pattern //CVC// at the end of a main clause, the corresponding word which occurs at the end of a relative clause has //CV·C// (with high tone on each unit) in place of the //CVC//, e.g.

Main clause	Relative clause
//orísyay//	//ñwáná nã órí ꜜsyá·ý//
"he is dancing"	"Who is it that is dancing?"
//obésyáy//	//ñwáná nã óbésyá·ý//
"he will dance"	"Who is it that will dance?"

This means, of course, that the word is pronounced without a final //ˀ// and without the loss of the final //C// whatever that //C// may be (see pp. 43-6).

(c) Any final //ˀ// is dropped (cf. (b) above), e.g.

Main clause	Relative clause
//ọṛụgụṛáˀ//	//ñwáná nã ọ́ṛụ́gụ́ṛá//
"he is washing"	"Who is it that is washing?"

Main clause	Relative clause
//waa·ɣ:yé?//	//ɨbyɛ̃·ɣ adyí ɲɨyɨ̨ nɑ̃ wáá·ɣ́:yé//
"he did not do it"	"Why is it that he did not do it?"

This applies whether the //?// represents the glottal suffix or not; it represents this suffix in the second example but not in the first.

(d) The //-// of any final //ɣ// is dropped, e.g.

Main clause	Relative clause
//ǫ̨ɽɣ̨bwɛ̨́·ɣ//	//hɑ̃wɑ́nɑ́ nɑ̃ ǫ́ɽ̨ɣ̨bwɛ̨́¹ɣ́//
"he is opening it"	"Who is it that is opening it?"

This means, of course, that the word is pronounced without the loss of the final //C// (cf. (b) above, and see pp. 47-8).

(e) Any final //:// is dropped, e.g.

Main clause	Relative clause
//wɛ̨ɛ́ɲ̃ɲ̃ mfńsyá://	//hwɑ̃nɑ́ nɑ̃ wɛ̨ɛ́ɲ̃ɲ̃ mfńsyá//
"he has seen my hand"	"Who is it that has seen my hand?"

This means, of course, that the preceding tone-bearing

unit ceases to be pronounced without //`// (see pp. 65-6).

This affix is similar to the interrogative suffix in that it involves the loss of characteristically prepausal features (see (b), (c) and (d) above); this suggests that in this case also the affix should be analysed as a zero suffix and the loss of the prepausal features attributed to the fact that the part of the word preceding the suffix is no longer fully prepausal. While the interrogative suffix, however, often gives the sentence a final low tone which it would not otherwise have, this affix often gives the clause a final high tone which it would not otherwise have (see (a) above). Since, then, the interrogative suffix is analysed as a suffix //-:// this other affix is analysed as a suffix //-!//; the first example under (a), for instance, will thus be written //ñwáná nǎ órí bá!//. Compare the analysis, in external sandhi, of words which require that the preceding word should end on a high tone as having base forms with initial //!// (see pp. 68-9).

4.52 Another tonal affix is postulated to account for the following features of verbal words which occur in relative and certain other clauses as compared with the corresponding verbal words which occur in main clauses:

(a) If, as is usually the case, the main clause word contains one or more high tones, the relative clause word generally has high tone in place of each low tone before the first high tone, e.g.

Main clause	Relative clause
//orisyirúw//	//ñwáná nã órísyírú·w!//
"he is laughing"	"Who is it that is laughing?"
//ǫkįtyáa·y//	//ñwáná nã ǫkítyá·á·y!//
"he grasped it"	"Who was it that grasped it?"

(b) If the main clause word has no high tone, the relative clause word generally has high tone on the first non-initial unit which contains a //CV// sequence in which the //C// is not //r// and on all preceding units, e.g.

Main clause	Relative clause
//ǫfuŋa tá·ṁ//	//ñwáná nã ǫfúŋa tá·ṁ!//
"he is wearing a cloth"	"Who is it that is wearing a cloth?"
//ǫruḃu//	//ñwáná nã ǫrúḃú!//
"he is felling it"	"Who is it that is felling it?"

This will be called the initial high tone affix.

4.53 Where the verbal word is the first word in a relative or other comparable clause, then, as is the case in all the examples given above, the clause is marked by the initial high tone affix at the beginning and //-!// at the end. Where there is a noun subject, of course, this is no longer the case, e.g.

Main clause	Relative clause
//ɖǫfí :rifiré·ń//	//fwáná nã ɖǫfí !rífíré·ń!//
"Kofi is calling him"	"Who is it that Kofi is calling?"

It would none the less appear from the evidence as so far stated that the initial high tone affix and //-!// together constituted a single sign. There are, however, reasons for according them a measure of independence.

The shape of all but a few nouns is such as to suggest that they contain the suffix //-!//; compare, for instance, the noun //aswó·ŕ// "worship" with the following:

Main clause	Relative clause
//woruswor//	//mbufírá a wórúswó'f!//
"they are worshipping"	"children who are worshipping"

//aswó'f// "worship" will thus be written //aswó'f!//. Since the relative and other clauses which are marked by ˄ affix and //-!// are all noun clauses, //-!// will therefore be termed the nominal suffix.

The following is an example of a non-relative noun clause marked by the initial high tone affix and //-:// :

Main clause	Noun clause
//ɓbu//	//mɪpye dée: ɓbú!//
"he fells it"	"I want him to fell it" (lit. "I-want that he-fell")

The use of ˄ affix in clauses of this type suggests calling it the subjunctive high tone affix.

4.54 Comparison of preterit and continuative affirmative verbs with the corresponding perfect and continuative negative verbs leads to the postulation of a negative high tone affix which is homonymous with the subjunctive high tone affix, e.g.

Preterit affirmative	Perfect negative
//okasyáa·y//	//ó·ỹ:kásyáa·y?//
"he spoke"	"he has not spoken"
//ǫ̨ǫ̨yɨ́i̯·y//	//ǫ̨·ń:ǫ̨yɨ́i̯·y?//
"he ate it"	"he has not eaten it"

Continuative affirmative	Continuative negative
//ǫ̨fu̯ṛa tá·m://	//ǫ̨·ḿ:fu̯ṛa tá·m:?//
"he is wearing a cloth"	"he is not wearing a cloth"

//ó·ỹ:kásyáa·y?//, for instance, will thus be written as //ó·ỹ:ká·y?//. It should be mentioned that the preterit and the perfect almost completely interchange their tense signs in the negative, the perfect and preterit negative corresponding in shape to the preterit and perfect affirmative respectively; compare the following with the first pair of examples above:

Perfect affirmative	Preterit negative
//waákásya//	//waa·ỹ:kásya?//
"he has spoken"	"he did not speak"

It should also be noted that the chief sign of negation in all tenses is the homorganic nasal prefix, and that the high tone affix, which is restricted to the two tenses mentioned,

merely reinforces the nasal prefix.

Similarly, comparison of all persons of the imperative other than the second singular with the second singular suggests the postulation of an imperative high tone affix as well as an imperative prefix //n-//, e.g.

Second singular	Other persons
//ko :dẹ́ẹ́·m̩//	//mā yé·ý́kó :dẹ́ẹ́·m̩//
"go into the house"	"let's go into the house"
//bira//	//ñá·ḿ ḿbíra//
"come"	"(you (plural)) come"

There are reasons, however, for identifying this high tone affix with the subjunctive high tone affix.

Imperative verbs of all persons differ from verbs in other tenses in that they have no distinct indicative and subjunctive forms (although they do have the usual nominal suffix //-!// when at the end of relative and other comparable clauses), e.g.

Main clause	Relative clause
//oruhwyuhwyé ḳǫfí//	//íbyē̃ adyí ńtyí nā́ órúhwyú-
"he is looking for Kofi"	hwyé ḳǫfí!// "Why is he looking for Kofi?"

Main clause	Relative clause
//iruhwyuhwyé ɖɔfɖ// "you are looking for Kofi"	//fbyɛ̃ adyí ńtyɖ nã́ frúhwyú-hwyé ɖɔfɖ!// "Why are you looking for Kofi?"
but //mã́ ɔ́ɲhwyuhwye ɖɔfɖ// "let him look for Kofi", "he is to look for Kofi"	//fbyɛ̃ adyí ńtyɖ nã́ ɔ́ɲhwyú-hwye ɖɔfɖ!// "Why is he to look for Kofi?"
//hwyuhwye ɖɔfɖ// "(you are to) look for Kofi"	//fbyɛ̃ adyí ńtyɖ nã́ hwyuhwye ɖɔfɖ!// "Why are you to look for Kofi?"

This is of no great significance in persons other than the second singular, as in these persons the imperative already has initial high tones in the main clause and in these circumstances the addition of the subjunctive affix would not be expected to have any effect. In the second singular, however, the imperative usually has an initial low tone in the main clause, and although the addition of the subjunctive affix would be expected to have the effect of replacing this low tone with high tone, the low tone is retained. Since, then, there is no contrast between imperative indicative verbs and imperative subjunctive verbs, it is possible to say either that all imperative verbs are indicative or that

they are all subjunctive. Since imperative verbs differ from verbs of all other tenses in that they always have an initial high tone affix (at least in all persons other than the second singular), the best solution would appear to be to take that affix as the subjunctive affix and to say that all imperative verbs are subjunctive.

It is then possible to account for all the irregularities of the second singular imperative (with one minor exception which need not be considered here) simply by saying that when the subjunctive high tone affix, the second singular prefix //i-// and the imperative prefix //n-// occur together, all three prefixes have zero variants. If the high tone affix of the imperative was not recognised as the subjunctive high tone affix, of course, it would be necessary to make an additional statement covering the failure of the initial low tone to be replaced with high in the subjunctive. (It should perhaps be pointed out that the zero variants referred to are morphemically conditioned, and are brought in here merely in support of the case for treating all imperative verbs as subjunctive).

The perfect affirmative tense is distinguished from the consecutive affirmative tense by a tonal affix which differs from the initial high tone affixes already seen

in that the high tones do not begin until after the personal prefix, e.g.

Consecutive	Perfect
//amã waakyirów//	//waákyírów//
"in order that he may write it"	"he has written it"
//amã waasyé˙y//	//waásyé˙y//
"in order that he may spoil it"	"he has spoilt it"
//obéká akyiré˙ḿ//	//waáká :ákyíré˙ḿ//
"he will tell me" (lit. "he-will-say will-show-me")	"he has told me" (lit. "he-has-said has-shown-me")

This affix also is analysed as an initial high tone affix homonymous with the other initial high tone affixes; the difference in starting point is considered comparable to the difference in position which distinguishes the future tense prefix //bé-// from the otherwise identical ingressive prefix //bé-//.

4.55 It was seen in the discussion of external sandhi (i) that some verbal words had to be written with initial //:// or //!// in order to account for their tonal behaviour, (ii) that

the //:// and //ꜜ// occurred only where there was no personal prefix, and (iii) that the selection of low or high tone depended on the same circumstances as it did in the case of personal prefixes (pp. 57-8 and 68-70). (Apart from certain irregularities which will be described in the next chapter, the tone of a personal prefix is high if and only if one of those initial high tone affixes which affect the personal prefixes requires it to be high). A prefix //:-// is accordingly postulated to account for the initial //:// or //ꜜ// just as, for instance, a prefix //o-// is postulated to account for initial //o// or //ɔ// meaning "he, she, it". A verb always has this prefix in the following circumstances:

(a) If it has a noun subject, e.g.

Without noun subject	With noun subject
//ọbédyíʔ// /ọbédyíʔ/	//kofí :bédyíʔ// /kofíꜜbédyíʔ/
"he will eat it"	"Kofi will eat it"
//mā́ ɔ́bédyíʔń// /mɔ̄ɔ́bédyíʔń/	//mā́ kofí ꜜbédyíʔń// /mākofíbédyíʔń/
"the one that he will eat"	"the one that Kofi will eat"
//ɔ́ba// /ɔ́bá/	//kofí ꜜba// /kofíbá/
"he comes"	"Kofi comes"

(b) If it is preceded by a verb (with or without objects)

which has the same subject as itself (whether that subject is expressed by a noun or not), e.g.

Not after another verb	After another verb
//ǫ́dyí// /ǫ́dyí/	//ǫgyę |ǃdyí//[1] /ǫgyę́dyí/
"he eats it"	"he believes it" (lit. "he-accepts eats")
//kǫfí ǃdyí// /kǫfídyí/	//kǫfí :gyę |ǃdyí//[1] /kǫfí ǃgyę́dyí/
"Kofi eats it"	"Kofi believes it"
	//ǫgyę kǫfí |ǃdyí//[1] /ǫgyękǫfídyí/
	"he believes Kofi"

The prefix will be called the indefinite personal prefix.

4.56 Verbs which end with a tone-bearing unit of the pattern //CVC// do not occur before an object (and all non-zero suffixes other than the tense suffix //-yi// count as objects for this purpose); their place is taken by verbs in which the final //C// is a separate unit with low tone, e.g.

Not before object	Before object
//waa˙n:nw̃ṹm?//	//waa˙n:nw̃ṹ˙m nǫwi?//
"he did not drink it"	"he did not drink water"
//waa˙n:nw̃ṹm |a?//	//waa˙n:nw̃ṹ˙m nǫwi |a?//
"if he had not drunk it"	"if he had not drunk water"

1. The phrase boundary //|// regularly occurs at the points at which serial verbal constructions are divisible into sections each containing one finite verb; see pp. 70-2.

Not before object	Before object
//ʂ·ʐ:ʐʐm²//	//ʂ·ʐ:ʐʐ·m-m²//
"he does not know"	"he does not know me"

A pre-object case suffix is postulated accordingly. This suffix resembles the nominal suffix in that it requires the replacement of final //CVC// with //CV·C//, but whereas the nominal suffix often gives the end of the clause or word a high tone it would not otherwise have, this suffix often gives the end of the verb a low tone it would not otherwise have. It is therefore analysed as having the base form //-://; //waa·n:nwú·m nʂwɻ²//, for instance, will thus be written //waa·n:-nwú·m: nʂwɻ²//.[1]

4.57 The full list of accentual affixes analysed as prefixes or suffixes consisting of a zero tone-bearing unit with low or high tone is now as follows:

//:-//	the indefinite personal prefix
//-://	the interrogative suffix
//-!//	the nominal suffix
//-://	the pre-object case suffix

It has already been suggested that historically the indefinite personal prefix

1. All verbs which are followed by an object are considered to have the pre-object case suffix, but the suffix is considered to have a zero variant except where it involves the replacement of //CVC// with //CV·C//.

//:-// may be a reduced form of a non-zero personal prefix (see p. 58), and the interrogative suffix //-:// a reduced form of a non-zero interrogative particle (see p. 68). The nominal suffix //-ɪ// is quite clearly a reduced form of a non-zero suffix, since in the Asante Twi dialect it is manifested by a vowel if a close vowel precedes, e.g.

Fante	Asante Twi	
//adyíɪ//	//adíé//	thing
//obúɪ//	//obúó//	stone
//ǫwụ́ɪ//	//ǫwụ́ǫ́//	death

The pre-object case suffix, however, has no obvious non-zero counterpart.

4.53 It is a characteristic of the accentual affixes so far considered that they affect the basic tone of the stem only superficially. This is not the case with the remaining two affixes, both of which indicate tense.

The continuative tense is indicated by a tonal affix which consists of replacing all the high tones of the verb with low tones, e.g.

Without affix	With affix
//ɔ́hye :kyɔ́·ẃɪ//	//ohye :kyɔ·ẃɪ//
"he wears a hat"	"he is wearing a hat"

Without affix	With affix
//o̧gyi̧ŋ̧á kobíná ŷkyéỹ//	//o̧gyi̧ŋ̧ā kobíná ŷkyéỹ//
"he stands behind Kobina"	"he is standing behind Kobina"

This will be called the low-tone tense affix.

The imperative tense is indicated by the low-tone tense affix in conjunction with the prefix //n-//. The low-tone tense affix is seen most easily in the second person singular, where the subjunctive affix (it was seen above that all imperative verbs are subjunctive), the second person prefix and the imperative prefix //n-// all have zero variants; compare the following with the above examples of the continuative tense:

Second person	Other persons
//hye :kyó·ẃ!//	//mā ó·ŷhyé :kyó·ẃ!//
"wear a hat"	"let him wear a hat"
//gyi̧ŋ̧ā kobíná ŷkyéỹ//	//mā yȩ́·ŷgyi̧ŋ̧ā kobíná ŷkyéỹ//
"stand behind Kobina"	"let's stand behind Kobina"

The preterit is indicated by a tonal affix in conjunction with the suffix //-yi//. The tonal affix is seen most easily in the pre-object case, where the suffix //-yi// has a zero variant. It is manifested by low tones throughout the

part of the verb preceding the last unit of the pattern //CV(C)//, high tone on that unit, and low tone after it, e.g.

Without affix	With affix
//obwaá kobína//	//obwáa kobína//
"he helps Kobina"	"he helped Kobina"
//ǫbwę́ʼɣ kǫtǫkúːn//	//ǫbwę́ʼɣ kǫtǫkúːn// (the same)
"he opens the bag"	"he opened the bag"

If, as is usually the case, the last unit of the pattern //CV(C)// is also the last unit of the verb, the final low tone is carried by an extra unit which is supplied as follows:

(a) If the last unit of the verb has the pattern //CV//, the //V// is doubled, e.g.

Without affix	With affix
//ǒhwye kobína//	//ohwyée kobína//
"he looks at Kobina"	"he looked at Kobina"
//ǫbębísya asyéʼnː//	//ǫbębisyáa asyéʼnː//
"he comes and asks a question"	"he came and asked a question"

(b) If the last unit of the verb has the pattern //CVC//, the final //C// becomes a separate unit, e.g.

Without affix	With affix
//ópə̃m//	//opə́mɪ˙ɣ//
"he sews it"	"he sewed it"
//ópə̃˙m: adyí://	//opə́˙m: adyí://
"he sews something"	"he sewed something"

Note (i) that //opə́mɪ// is merely the semipreconsonantal form of //opə́˙m//, and (ii) that in //ópə̃˙m:// the tone-bearing unit boundary before the //m// is attributable to the pre-object case suffix.

The affix will be called the high-low tone tense affix.

It will be seen that both the low-tone tense affix and the high-low tone tense affix suppress all tonal distinctions between stems, and that the high-low tone affix further suppresses the distinction between //CV// and //CVC// stems on the one hand and //CVV// and //CV˙C// stems on the other.

4.6 Summary of the verbal affixes

The verbal prefixes, suffixes and other affixes, tonal and non-tonal, may all be listed together as follows, work-from the outermost layers to the innermost:

(a) The interrogative suffix //-:// .

(b) The negative or conditional suffix //-ˀ//.

(c) The nominal suffix //-ꜜ//.

(d) The separable suffixes //-hó// "there", //-há// "here", //-ñ̃ỹ́n// "where", //-ḿ̥ú̥// "inside", //-nʷá// "that", and //-ý̥í̥// "this".

(e) The inseparable suffixes //-mĩ// "me", //-wu// "you (singular)", //-nʷa// "him, her", //-yɛ̃ˑỹ// "us", //-ñ̃ãˑm// "you (plural)", //-wɔ̃ˑw̃// "them", and //-yi// (preterit tense).

(f) The subjunctive and negative high tone affixes.

(g) The personal prefixes //mĩ-// "I", //i-// "you (singular)", //o-// "he, she, it", //ye-// "we", //wo-// "they" and //ː-// (indefinite person), and the pre-object case suffix //-ːꜜ//.

(h) The perfect tense high tone affix.

(j) The tense prefixes //ri-, a-, n-, bé-//.

(k) The negative prefix //nː-//.

(l) The low tone and high-low tone tense affixes.

(m) The ingressive prefixes //bé-// (previous coming) and //ké-// (previous going).

(n) The affix of reduplication.

4.7 Summary of the different types of tonal agreement and downstep

4.71 All the different types of tonal agreement have now been covered, and may be summed up as follows:

(a) Agreement of a word-initial low tone //V// or //H// with a final high tone of a preceding word (see p. 60).

(b) Agreement, in pause, of a word-final low tone unit with a preceding high tone of the same word (see p. 61).

(c) Agreement with the following high tone of a low tone unit which is between two high tones of the same word (see pp. 94-6).

(d) Agreement of a word-final low tone unit with an initial //!// of the following word (see pp. 68-70).

(e) Agreement of a low tone unit with a word-final //!// of the same word (see pp. 104-7).

The last two, of course, depend on the postulation of //!// (zero tone-bearing unit with high tone) for their analysis as types of tonal agreement.

4.72 //ꜜ// (downstep) is automatic between high tones of the same sentence wherever one or more low tones intervene.

Most cases of non-automatic //ꜜ// are accounted for by an intervening high tone which is high only by tonal agreement and which is both preceded and followed by high tones. A low tone which becomes high is always between two high tones in agreement type (c) but only sometimes in the other types. A low tone which becomes high in agreement with a preceding high tone, as in types (a) and (b), is separated by //ꜜ// from a following high tone, and a low tone which becomes high in agreement with a following high tone, as in types (c), (d) and (e), is separated by //ꜜ// from a preceding high tone.

The remaining cases of non-automatic //ꜜ// are accounted for by //:// (zero tone-bearing unit with low tone) in one or other of the following roles:

(a) Representing a prefix of person or gender (see pp. 57-8 and 115-7).

(b) Representing part of the negative prefix //n:-// (see pp. 59-60 and 96-7).

4.73 Provided no special problems arose in the detailed

study of the form classes other than the verb, it would be possible to eliminate //ˈ// from the transcription entirely if high tones which are high only by tonal agreement were not shown as high tones (and //CVˈC// sequences which are split into two units only because of a following zero tone-bearing unit were not shown as being split into two units; see p. 105).

5 # MORPHEMICALLY CONDITIONED ALTERNATION WITHIN THE VERBAL WORD

5.0 This chapter is concerned with those verbal words which are irregular in the sense that one or more of their constituent morphemes have shapes which cannot be accounted for in terms of morpho-phonemically conditioned alternation.[1] Those verbal words in which the irregularity is conditioned solely by certain combinations of affixes will be dealt with first.

5.1 ## Verbal words in which the irregularity is not conditioned by the stem

5.11 There are no regular subjunctive negative verbs; that is, no regular verbs containing both the subjunctive high tone affix and the negative prefix //n:-//. In their place are verbs in which the high tone affix has effect only as far as the //N// of the negative prefix, e.g.

Indicative	Subjunctive
//o·n:twó // [__-]	// ó·ń:twó // [--]
"he does not buy"	
//o·ɟ:kyiré // [___-]	// ó·ɟ:kyiré // [--_-]
"he does not show"	

1. See pp. 74-5.

Indicative	Subjunctive
//waa˙ỳ:kyiré// [____¯]	//wáá˙ý:kyi ꜜré// [¯¯¯_¯]
"he did not show"	
Cf. //orikyiré// [___¯]	//óríkyíré// [¯¯¯¯]
"he is showing"	

In the case of negative verbs which are in the perfect or continuative tense (and which therefore contain the negative high tone affix), the indicative and subjunctive would be indistinguishable if they were either regular or in accordance with the last paragraph. In fact, however, the subjunctive is distinguished by downstep between the negative prefix //n:-// and the following stem or prefix; the //:// of the negative prefix //n:-// is analysed as having low tone in order to account for this downstep (see pp. 72-3), e.g.

Indicative	Subjunctive
//ọ̀˙ý:kẹ́bị́ṣyáa// [¯¯¯¯¯_]	//ọ̀˙ý:ꜜkẹ́bị́ṣyáa// [¯¯¯¯¯_]
"he has not gone and asked"	
//ọ̀˙ḿ:ṣụ́ra// [¯¯¯_]	//ọ̀˙ḿ:ꜜṣụ́ra// [¯¯¯_]
"he is not wearing"	
//ó˙ń:dá// [¯¯¯]	//ó˙ń:ꜜdá// [¯¯¯]
"he is not lying"	

(This irregularity may well have arisen by analogy with the

other subjunctive negative tenses; compare, for instance, the example //ǒ·ń:ꜝtwó// in the last paragraph). Also, in the case of negative verbs which are in the perfect or continuative tense and which contain the indefinite personal prefix //:-//, the indicative is distinguished from the subjunctive by an initial downstep; this can be interpreted as indicating that the negative high tone affix, like the perfect tense high tone affix in regular verbs (see pp. 114-5), occurs in the "position" in which it does not affect the personal prefix, e.g.

Indicative	Subjunctive
//kofi :ý!kébisyáa// [_‾----_]	//kofi !ý:ꜝkébisyáa// [_‾‾---_]
"Kofi has not gone and asked"	
//kofi :ḿ!fúra// [_‾--_]	//kofi !ḿ:ꜝfúra// [_‾‾-_]
"Kofi is not wearing"	
//kofi :ń!dá// [_‾--]	//kofi !ń:ꜝdá// [_‾‾-]
"Kofi is not lying"	
Cf. //kofi :âba// [_‾-_]	//kofi !âba// [_‾‾-_]
"Kofi has come"	

(This irregularity may well have arisen by analogy with the other indicative tenses, in particular the perfect affirmative; see the last pair of examples).

5.12. There are no regular verbs in which the personal prefix //mɪ-// "I" is followed by the tense prefix //bé-//. In their place are verbs in which the personal prefix has a variant with no vowel, e.g.

//mbébá//	I shall come
Cf. //mɪ́ba//	I come

5.13 There are no regular verbs in which the personal prefix //i-// "you (singular)" is followed by the tense prefix //a-//. In their place are verbs without any segment corresponding to a personal prefix, e.g.

//ma‿ɪ́ba//	I have come
// ɪ́ba//	you (singular) have come
//wa‿ɪ́ba//	he has come

These verbs are considered to contain a zero variant of the prefix //i-//.

5.14. There are no regular verbs in which the subjunctive high tone affix, the personal prefix //i-// "you (singular)" and the imperative prefix //n-// occur together. In their place are verbs without any manifestation of any of the affixes, except that, unless the verb is reduplicated or ingressive or pre-object, the stem has high tone if it has only one

tone-bearing unit, e.g.

//mí·m̀óíra//	I am to come
//bira//	(you (singular) are to) come
//mú·ý́hwyé//	I am to look
//hwye ɡɔfí//	(you (singular) are to) look at Kofi
but //hwyé//	(you (singular) are to) look

These verbs are considered to contain zero variants of all three affixes except when the stem has high tone, in which case the high tone is taken as a manifestation of the subjunctive high tone affix. This analysis has already been discussed in the chapter on morphophonemically conditioned alternation (see pp. 112-4).

5.15 There are no regular verbs which contain both the indefinite personal prefix //:-// and the tense prefix //a-// apart from those which contain either the negative prefix //n:-// or one of the initial high tone affixes. In their place are verbs without any manifestation of the indefinite personal prefix //:-//, e.g.

//obéyé |amá·m//[1]	he will do it for me (lit. "he-will-do will-give-me")
Cf. //waáye |:áma·m//[1]	he has done it for me (lit. "he-has-done has-given-me")

1. The phrase boundary //|// regularly occurs at the points at which serial verbal constructions are divisible into sections each containing one finite verb; see pp. 70-2.

The irregularity is apparent from the fact that in external sandhi the //a// is usually high in agreement with a preceding high and is therefore the first tone-bearing unit of the word; the example quoted, for instance, would usually be realised as //obéyáámām//. The verbs concerned are considered to contain a zero variant of the indefinite personal prefix //:-//.

5.16 There are no regular verbs in which the subjunctive high tone affix, the imperative prefix //n-//, the low tone tense affix and one of the ingressive prefixes //bé-, ké-// occur together. In their place are verbs without any manifestation of the low tone tense affix, e.g.

//ɔ́·ḿbɔ́ˡhwyúhwyé//	he is to come and look for it
//bɔ́ˡhwyúhwyé//	(you (singular) are to) come and look for it
Cf. //ɔ́·ǵhwyúhwye//	he is to look for it
//hwyuhwye//	(you (singular) are to) look for it

These verbs are considered to contain a zero variant of the low tone tense affix.

5.17 There are no regular indicative negative verbs containing the tense prefix //ri-//. In their place are the following:

(a) Verbs in which the tense prefix has high tone, e.g.

//mīrí·m:ḅíṣya// I shall not ask

(b) Verbs in which the tense prefix has low tone but the personal prefix has high tone, e.g.

//mírí·m:ḅíṣya// I shall not ask

(c) Verbs which differ from (b) in not having the /CV/ of the tense prefix, e.g.

//mí·m:ḅíṣya// I shall not ask

Cf.

//mī·m:ḅíṣya// I do not ask

The three are in free variation except that (b) and (c) are possible only where there is a personal prefix other than //o-// "he, she, it" or the indefinite personal prefix //:-//. Subjunctive negative verbs with //ri-// are as if formed in the usual manner (see pp. 127-8) from the regular indicative negative verbs as they would be if they occurred, e.g.

//mírí·m:ḅíṣya// I shall not ask (subjunctive)

5.2 Verbal words in which the irregularity is conditioned by the stem

5.21 The most important of the irregularities which are conditioned by the stem is to be found among verbs in which (i) there is no affix of reduplication, no low tone or high-low tone tense affix and no negative prefix, and (ii) the stem is one which (provided neither the high-low tone tense affix nor a //-:// or //-:// suffix is present) contains only one tone-bearing unit. Stems of the type referred to fall into two groups according to whether they have high or low tone when after the tense prefix //bé-//, e.g.

With high tone stem	With low tone stem
//obéká//	//obéka//
"he will remain"	"he will bite"
//obésyáy//	//obésyay//
"he will dance"	"he will scoop up"
//obóhwyé//	//obóhwyi//
"he will look at"	"he will beat"
//obébá//	//obéda//
"he will come"	"he will lie"

If the verb has a high tone stem other than //ká// "touch, say", then except as stated below it has low tone on the stem and high tone on the preceding tone-bearing unit, e.g.

With //ká//	With other high tone stem
//oká// "he touches"	//ɔ́ba// "he comes"
//kɔfí :ká//	//kɔfí ɗba//
"Kofi touches"	"Kofi comes"
//orika// "he is touching"	//orɗba// "he is coming"
//waáká//	//waába//
"he has touched"	"he has come"

If the tense prefix //a-// is present, however, the irregularity does not occur unless there is also an initial high tone affix (as there is, for instance, in the last pair of examples above), e.g.

//waaká//	//waabá//
"that he may touch"	"that he may come"

The irregularity occurs in subjunctive as well as indicative verbs. In subjunctive verbs, in fact, the irregularity is more widespread, since for one thing it is impossible for the tense prefix //a-// to occur without an initial high tone affix. The subjunctive verbs corresponding to the indicative verbs quoted above are therefore as follows:

//ɔ́ká//	//ɗká//	//ɔ́ɾíká//	//wááká//	//wáákáá//
//ɔ́ba//	//ɗba//	//ɔ́ɾíba//	//wáába//	//wáábáá//

The irregularity occurs also in verbs with a low tone stem, an initial high tone affix, and the pre-object case suffix //-:// [1] Of the following pairs of examples, all but the first are subjunctive:

Not before object	Before object
//waádá//	//waáda mpá nwúdwu//
"he has lain"	"he has lain on the bed"
//ódá//	//óda mpá nwú!dwú!//
"he lies"	"he lies on the bed"
//ḳọfį́ !dá//	//ḳọfį́ !da mpá nwú!dwú!//
"Kofi lies"	"Kofi lies on the bed"
//órídá//	//órída mpá nwú!dwú!//
"he is lying"	"he is lying on the bed"
//wáádá//	//wááda mpá nwú!dwú!//
"he has lain"	"he has lain on the bed"
//wáádá//	//wááda mpá nwú!dwú!//
"that he may lie"	"that he may lie on the bed"

It will be seen, incidentally, that the distinction between high tone and low tone stems is completely lost in perfect indicative and in subjunctive verbs in the pre-object case.

It was seen above (pp. 130-1) that unreduplicated non-ingressive second person singular imperative verbs with one-

1. These verbs would, if regular, have high tone on the stem by virtue of the presence of the initial high tone affix; see p. 108, (b).

unit stems had high tone on the stem except in the pre-object case, and that this high tone was analysed as a manifestation of the subjunctive high tone affix. The failure of the high tone to occur in the pre-object case would appear to be another instance of the irregularity described in the last paragraph, though in this instance there is no preceding tone-bearing unit to carry a high tone, e.g.

Not before object	Before object
//hwyé// "look"	//hwye kofí// "look at Kofi"

5.22 There are no regular verbs which can be analysed as an initial high tone affix plus a remainder which (i) has low tones throughout and (ii) contains a reduplication of a simple stem of the pattern //CVCV(C)// in which the first //V// is //i// or //u// and the second //C// is //r// or //n(w)// or //m//, or of a simple stem of the pattern //CVV// or //CV'C//. In regular verbs of this type the initial high tone affixes would be manifested as high tones extending as far as the first tone-bearing unit of the reduplication (see p. 108, (b)). In their place, however, are verbs in which the high tones extend as far as the second tone-bearing unit of the reduplication, e.g.

Indicative affirmative	Subjunctive affirmative
//wọ́gyíṇéỹgyíṇa// [------]	// wọ́gyíṇéỹgyíṇa// [----__]
"they are standing about"	

Indicative negative	Subjunctive negative
// wọ́·ý:gyíṇéỹgyíṇa//	// wọ́·ý:gyíṇéỹgyíṇa//
[-----__]	[¯¯---__]
"they are not standing about"	

5.23 There are no regular verbs which contain both the high-low tone tense affix and a stem of the pattern //CVCV(C)// in which the first //V// is //i// or //u// and the second //C// is //r// or //n(w)// or //m//. In regular verbs of this type an expanded form of the final //CV(C)// would carry the high-low sequence (see pp. 121-2). In their place, however, are verbs in which the high-low sequence is carried by the two tone-bearing units of the unexpanded //CVCV(C)//, e.g.

Without high-low affix	With high-low affix
//orikyiré //	//okyíre //
"he is showing"	"he showed"
//orikyiró·w://	//okyíro·w://
"he is writing"	"he wrote"
//orikyirékyire //	//okyirekyíre //
"he is teaching"	"he taught"

Cf. //orikásya // //okasyáa //

"he is speaking" "he spoke"

5.24 The stems listed below have no final //C// if the high-low tense affix is absent and the verb is immediately followed either by an object or by another verb in the same series (i.e., generally speaking, by another verb with the same subject). Two of them, moreover, have //y// instead of their usual final //C// when the high-low tense affix is present.

Without high-low tense affix		With high-low tense affix	
Not followed by object or serial verb	Followed by object or serial verb		
//ḍúr//	//ḍú//	//ḍú·r//	reach
//far//	//fa//	//fá·y//	take
//ɓúɲ//	//ɓú//	//ɓú·n//	see
//kór//	//kó//	//kó·r//	go
//ɳwyar//	//ɳwya//	//ɳwyá·y//	cut

Examples are:

//orúkor//	he is going
//ɔrụɳwyar//	he is cutting it
//ókor |a?//	if he goes
//ɔɳwyar |a?//	if he cuts it

//ɓko aswɔ́·fí |a?//	if he goes to church
//ǫǩwya :nã́·mí |a?//	if he cuts the meat
//ɓko |:kéfar//	he goes and takes it (lit. "he-goes goes-takes")
//ǫǩwya |:mã́·m//	he cuts it for me (lit. "he-cuts gives-me")
//ɓ·ỹ́!kɔ́ri·y?//	he has not gone
//ǫ·ỹ́!ǩwyá·y·y?//	he has not cut it
//ɓ·ỹ́!kɔ́·r aswɔ́·fí?//	he has not gone to church
//ǫ·ỹ́!ǩwyá·y :nã́·mí?//	he has not cut the meat

The stem //ǫuǫá?// "wash" has a final //y// in place of its final //?// when the high-low tense affix is present, e.g.

//ǫruǫuǫá?//	he is washing
but //ǫǫúǫay·y//	he washed

In those verbs which fail to have their final //C// on account of a following object, the failure can be said to be conditioned by the pre-object case suffix. In those which fail to have it on account of a following serial verb, however, the failure cannot be said to be conditioned by any of the affixes so far recognised. A pre-sequel case affix is therefore postulated specially to account for them.

5.23 There are no regular indicative affirmative non-ingressive unreduplicated verbs containing both the high-low tense affix and one of the following stems:

//ḍụ̀r//	reach	//kɔ́r//	go
//ɲ̃ɲ́n//	see	//bá//	come

(It will be seen that the three which have a final //C// are all stems which lose that //C// before an object or a serial verb.) In the place of regular verbs are verbs in which the stem has low tone throughout, e.g.

Without high-low affix	With high-low affix
//ɔ́ko aswɔ́ˑfɛ̀!//	//okoˑr aswɔ́ˑfɛ̀!//
"he goes to church"	"he went to church"
//ɔ́kor// "he goes"	//okoriˑy// "he went"
//ɔ́ba// "he comes"	//obaaˑy// "he came"

The corresponding subjunctive and negative verbs, which always contain an initial high tone affix, can be looked upon as being formed regularly from the indicative affirmative verbs either as they are or as they would be if they were regular, e.g.

//kọfị nā ɔ́kɔ́ˡríˑý!//	it was Kofi who went
// ɔˑ́ý!kɔ́ˑr aswɔ́ˑfɛ̀?//	he has not gone to church

5.26 There are no regular indicative affirmative non-ingressive unreduplicated verbs containing both the low tone tense affix and one of the following stems:

//dwoo//	(with //swū//, which always follows)	//mo̱o̱//	be bad
		//yo̱//	be good
	be enough		

In place of the regular verbs are verbs in which the first or only tone-bearing unit of the stem has high tone, e.g.

//odwóo swū//	it is enough
//o̱yó̱//	it is good

The corresponding subjunctive and negative verbs, which always contain an initial high tone affix, can be looked upon as being formed regularly from the indicative affirmative verbs either as they are or as they would be if they were regular, e.g.

//ɨyɨ nā ó̱yó̱!//	this is the one that is good
// ó·ṅ!dwóo swū?//	it is not enough

5.27 There are no regular verbs which contain both the imperative prefix //n-// (in its zero or non-zero variant) and the stem //bá// "come". In their place are verbs in which

the stem has the special form //bira//, e.g.

Without //n-//	With //n-//
//ɓba// "he comes"	//ɓ'ᵐbíra// "he is to come"
//ɗba// "you (singular) come"	//bira// "(you (singular) are to) come"

5.28 There are no regular verbs which contain the stem //swɔ́'r// "rise" but neither the pre-object case suffix //-:// nor the high-low tense affix. In their place are verbs which are as if they had a suffix homonymous with the nominal suffix //-!// and which are analysed accordingly, e.g.

Before object	Not before object
//swo'r nté'ᵑ́!// [___--]	//swo'ɾ́!// [_-]
"rise quickly"	"rise"
// ɔ́'ᶮ́swɔ́'r nté'ᵑ́!// [---__--]	// ɔ́'ᶮ́swɔ́'ꜜɾ́!// [----]
"he is to rise quickly"	"he is to rise"
//obɔ́swɔ́'r nté'ᵑ́!// [_--__--]	//obɔ́swɔ́'ꜜɾ́!// [_--=]
"he will rise quickly"	"he will rise"

6 THE STRUCTURE OF THE MORPHEMES OF THE VERBAL WORD

6.01 This chapter starts from the base form of the stem or affix as established in previous chapters, and proceeds beyond it to an internally reconstructed form which better reflects the internal structure of the stem or affix. Internally reconstructed forms and their elements are indicated by oblique strokes and an initial asterisk, e.g. */bẏ'á/ "answer"; cf. the base form //ḅwaá//.

6.02 Stems which have final //ʔ// or final //ɏ// are rare; only the following have been found:

With final //ʔ//		With final //ɏ//	
//gụṛáʔ//	wash	//ṭyẹ́'ɏ//	listen
//biréʔ//	get tired	//ọwẹ́'ɏ//	open
		//ṗwẹ́'ɏ//	come out
		//ḥwẹ́'ɏ//	pour
		//ṭwẹ́'ɏ//	take off (pot, etc., from fire)
		//swé'ɏ//	take down (load from head)

These stems will not be referred to specifically again;

references to //CVCV// stems are to be taken as applying equally to //CVCV²// stems and references to //CV·C// or //CV·y// stems as applying equally to //CV·ʷ// stems.

6.03 Stems fall into two groups according to whether or not they contain a medial consonant (or consonant cluster), e.g.

Without medial //C//		With medial //C//	
//bá//	come	//kásya//	speak
//dyow//	blaze	//kyiré//	show
//ɲyɛ́ɛ́//	finish	//pátyir//	slip
//ʈwɖ́·m//	be able	//mɖ́ntwʈ́m//	upset

The second group is conveniently subdivided into (i) those in which the first //V// is //i// or //u// and the medial //C// is //r// or //n(ʷ)// or //m//, and (ii) the remainder. The three groups will be considered in turn.

6.1 Stems with no medial consonant

6.11 The structures encountered in stems with no medial //C// are //CV, CVC, CVV, CV·C//, as is illustrated by the four examples given above. It will be noted that while //CV// and //CVC// structures contain only one tone-bearing unit, //CVV// and //CV·C// structures contain two. It will be noted also

that while //CVC// and //CV·C// structures differ only in their respective number of tone-bearing units, //CV// and //CVV// structures differ more substantially. Since, however, the two //V//'s of a //CVV// stem are always identical, it is at first sight, at least, reasonable to consider that the difference between //CV// and //CVV// structures is, like that between //CVC// and //CV·C// structures, basically a difference in number of tone-bearing units, and that the difference in number of //V//'s is only secondary.

This view is supported by the way in which an extra tone-bearing unit is supplied in order to carry the final low tone of the high-low tense affix (see pp. 120-2): where the final unit of the stem has the structure //CVC// the final //C// becomes a separate unit, and where the final unit has the structure //CV// the //V// is doubled. Thus //CVC// and //CV// stems cease to be distinguishable from //CV·C// and //CVV// stems.

6.12 There is, however, a considerable difference between //CV// and //CVV// stems in the distribution of the //C//'s and the //V//'s in relation to each other. In the great majority of /CVV/ stems the //V//'s are /a//, and when the //V//'s are //a// the //C// invariably has //y// or //w// or both, e.g.

//kyaá//	become twisted	//ɲgyaá//	need
//owaá//	help	//ɲgwaá//	answer

//ɓyaá//	lie across	//ḅyaá//	meet
//hwaá//	be white	//ḳwaá//	sow
//wyaá//	creep	//ṿyaá//	steal
//swaá//	carry on head	//ṣwaá//	study

(The official spelling gives the impression that there are a few //Caa// stems in which the //C// has neither //y// nor //w//; it has, for instance, 'kaa' "remember", 'paa' "curse". All these, however, are analysable as //Ca'y// stems on the grounds given in the chapter on external sandhi; see pp. 34-7). Now when a //C// with //y// or //w// occurs before //a//, the //a// is generally the result of the replacement of the //V// following the //C// with a //V// identical to the following //V//, e.g. //ya‿ába// "we have come", //wa‿ába// "they have come"; cf. //yerfba// "we are coming", //worfba// "they are coming" (see pp. 31, 34, and 79-80). The replaced vowel is front if the //C// has //y// but not //w// and back if the //C// has //w// but not //y//. If the //C// has both //y// and //w//, the replaced vowel is usually front. //Caa// stems would therefore appear to be analysable as */CVa/ stems in which the */V/ is front or back according to whether the */C/ has */y/ or not.

This fits in with another peculiarity of //Caa// stems; they frequently have // ‚// with the initial //C// (which means, of course, that they require that preceding vowels should

have /˛/; see pp. 30-1), although generally the initial //C// of a stem has //˛// only if the following //V// is //i̯// or //u̯// (or //ɪ̯// or //ʊ̯//). This irregularity is disposed of if it is considered that the postulated */V/ in */CVa/ stems is always either */i/ or */u/, with or without */˛/ according to whether or not the initial */C/ has */˛/.

The twelve //Caa// stems listed above are therefore analysed as follows:

With */i/		With */u/	
Without */˛/	With */˛/	Without */˛/	With */˛/
*/kyiá/	*/ky̯i̯á/	*/buá/	*/bu̯á/
*/byiá/	*/by̯i̯á/	*/huá/	*/dwu̯á/
*/wyiá/	*/wy̯i̯á/	*/swuá/	*/swu̯á/

6.13 Most //CVV// stems which are not //Caa// stems are //Ce̯e̯// stems, and these are similarly analysed as */Ci̯e̯/, e.g.

//sye̯e̯//	keep	*/syi̯e̯/
//wye̯e̯//	finish	*/wyi̯e̯/

Here again there is the advantage of avoiding the irregularity of having //˛// in stems which do not have //i// or //u// (or //ɪ// or //ʊ//). There are very few other //CVV// stems, and none have been noted to which a similar analysis does not apply.

6.14 //CVV// stems, then, are not simply //CV// stems with a doubled //V//. //Ca// stems in which the //C// has //y// or //w// can, however, be usefully looked upon as contracted */CVa/ stems; examples of such stems are:

//syá//	heal	//gwa//	cut up (meat)
//gya//	accompany		

There are then no */CV/ stems in which the */C/ has */y/ without */w/ before a non-front */V/ or */w/ without */y/ before a non-back */V/. To distinguish the contracted from the uncontracted */CVV/ stems the uncontracted will be written with a raised dot between the two tone-bearing units, e.g. */kyi˙á, byi˙á/; cf. the contracted stems */syiá, gyia, gua/.

It is also useful to analyse the very few //Ce// and //Co// stems as contracted */Cie/ and */Cuo/ stems respectively, e.g.

//gyé//	accept	*/gyie/
//yé//	be good	*/yié/
//swó//	seize	*/swuó/
//mó//	be bad	*/muó/

(Compare the uncontracted stems */syi˙é, yyi˙é/ already seen). There are then no */CV/ stems in which */ ˛/ occurs with a */V/

other than */i/ or */u/.

6.15 The application of the same principles to //CVC// and //CV·C// stems leads to the analysis of some of these as */CVVC/ and */CVV·C/ stems respectively, e.g.

//ɣām//	grind	*/ɣiām/
//wár//	be long	*/wuár/
//kwáɣ//	cackle	*/kuáɣ/
//ɕyām//	writhe	*/ɕyi̯ām/
//ʂwar//	be small	*/ʂwu̯ar/
//ʈwyar//	cut	*/ʈwyi̯ar/
//ʈwyɕ́r//	lean	*/ʈwyi̯ɕ́r/
//ya·f//	be ill	*/yia·f/
//ʂwā·ɣ́//	run away	*/ʂu̯ā·ɣ́/
//ɕyʂ́·ɣ//	(of liquid) be clear	*/ɕyi̯ʂ́·ɣ/

6.16 The structure of stems with no medial */C/ may now be summed up as follows:

(a) Each stem has a */CV/ nucleus.

(b) This nucleus may be extended by a medial */V/, or a final */C/, or both.

(c) A stem with no extension constitutes one tone-bearing

unit; a stem with one or two extensions may constitute either one or two tone-bearing units.

6.17 It has been seen that the medial */V/ extension has four different values, but the number of different values of the final */C/ extension has not been discussed. The final //C//'s which occur in the base form are //r,n,m,y,w,ɣ,ɯ//. //ɣ// and //ɯ// occur only after non-back and back vowels respectively, and are both analysed as */ɣ/ in the reconstructed form, e.g.

//byéɣ//	approach	*/byéɣ/
//syɪɣ//	pass	*/syɪɣ/
//kaɣ//	count	*/kaɣ/
//fóɯ//	get thin	*/fóɣ/
//kwyóɯ//	wait	*/kwyóɣ/
//pʉ́ɯ//	smoke	*/pʉ́ɣ/

//y// and //w// also occur only after non-back and back vowels respectively, but there is a vital difference; the following is a selection of stems with final //y// or //w//:

//ʂyuw//	pound	//dwów//	weed
//tyuw//	tear	//búw//	get drunk
//dyow//	blaze	//hʉ́w//	blow

//syé˙y//	spoil	//swé˙ɤ//	put down (from head)
//ʂyá˙y//	stop	//ʈwʂ́˙ɤ//	open
//ká˙y//	remember	//syáy//	dance

In these stems it is quite common for a //C// with //y// but not //w// to occur before a back vowel or for a //C// with //w// but not //y// to occur before a front vowel. This never happens in /CV/ stems other than those analysed as */CVV/; in these a //C// with //y// or //w// but not both is invariably followed by a front or back vowel respectively. Stems with final //y// or //w// preceded by a vowel other than //a// preceded in turn by a //C// with //y// or //w// but not both are therefore analysed as having, before their final */C/, a */V/ which is front or back not according to its quality (which depends, of course, on whether */y/ or */w/ follows), but according to whether the preceding */C/ has */y/ or */w/. The twelve examples listed above are therefore analysed as follows:

*/ʂyɨw/	*/dwɔ́w/	*/syé˙y/	*/swɔ́˙ɤ/
*/tyiw/	*/bʉ́w/	*/ʂyɨá˙y/	*/ʈʉʂ́˙ɤ/
*/dyew/	*/ʈʉ́w/	*/ká˙y/	*/syáy/

Compare the phonemically conditioned replacement of back vowels with front vowels before the //-˙C// form of the suffix //-yi//, and the reverse before the //-˙C// form of the suffix //-wu//:

Without suffix	With suffix
//obɔ́o kobína//	//obwée·y// "he hit it"
"he hit Kobina"	//obɔ́o:w// "he hit you"
//okɔ́·mí :dyi kobína//	//okɔ́·mí :dyu:w//
"Kobina is hungry"	"you are hungry"

Final //y// and //w//, then, unlike final /ỹ/ and /w̃/, cannot be considered to be in complementary distribution in relation to the preceding vowel. They are, however, complementary in a much more unexpected way: //w// occurs only as part of the same tone-bearing unit as the preceding //CV// sequence and //y// only as a separate tone-bearing unit, except that //y// occurs to the exclusion of //w// after //a//. It is therefore possible to analyse both as */y/ after all, so that the first six of the twelve examples are analysed as follows:

//ʂyu̱w//	*/ʂyi̱y/	//dwɔ́w//	*/dwɔ́y/
//tyuw//	*/tyiy/	//bú̱w//	*/bú̱y/
//dyow//	*/dyey/	//ḫù̱w//	*/ḫù̱y/

Final //r// and final //n// occur only after oral and nasal vowels respectively, and are both analysed as */r/ in the reconstructed form, e.g.

//kyír//	catch	*/kyír/

//kyer//	delay	*/kyer/
//bi̱·ŕ//	become black	*/bi̱·ŕ/
//wyfn//	weave	*/wyfr/
//twűn//	forge	*/twűr/
//kyĩ·ń//	swing	*/kyĩ·ŕ/

Final //y,w// and final //ỹ,w̃,m// also occur only after oral and nasal vowels respectively, but none of the nasal //C// s are analysed as complementary to the corresponding oral //C// s as it is in some cases desirable, as will be seen presently, to analyse nasal vowels as oral before final //ỹ, w̃,m//.

The final */C/ extension, then, has four different values: */r,m,y,ỹ/.

6.18 Stems with final //ỹ,w̃,m//, which, as has just been seen, always have nasality with the //V//, have the following peculiarities:

(a) The //V// is frequently //ẽ,õ//, although //ẽ,õ// do not occur in //CV// stems, e.g.

		//fyẽ́m//	borrow, lend
//byẽ́ỹ//	approach	//dwṍm//	associate with
//fṍw//	get thin	//dwṍm//	associate with

(b) The initial //C// is frequently //b,d,h// (with or without

//y// or //w//), although //b,d,h// do not occur before nasal vowels in //CV// stems, e.g.

//dáỹ//	demand	//bíỹ//	get cooked
//ḍwṵ̀m//	(of fire, etc.) go out	//ḥwyɪ̀m//	snatch

(c) //ỹ,w̃,wỹ// occur to the exclusion of //y,w,wy// as initial //C//, although this is not the case in /CV/ stems, e.g.

//ỵéỹ//	rear	//wyów̃//	stay awake
//ỵɪ̀m//	know	//ỵá·ỹ//	wake up

The nasal //V// is accordingly analysed as oral and any initial //ỹ,w̃,wỹ// is analysed as */y,w,wy/, except that the */V/ is analysed as nasal after any nasal //C// other than //ỹ,w̃,wỹ//; this exception is made because in //CV// stems nasal consonants are always followed by nasal vowels. The examples given under (a) to (c) above are therefore analysed as follows:

*/byéỹ/	*/fyém/	*/fóỹ/	*/dwóm/
*/dáỹ/	*/bíỹ/	*/ḍwṵ̀m/	*/ḥwyɪ̀m/
*/yéỹ/	*/wyóỹ/	*/ỵɪ̀m/	*/ỵá·ỹ/

The following additional examples are of stems to which neither (a) nor (b) nor (c) applies:

	//swʉ̃m//	serve	*/swum/
	//ʂwɻ̃·ʊ̃//	push	*/ʂwɻ̃·ɣ/
	//kãɣ//	read	*/kaɣ/
Cf.	//nʊ̃́m//	drink	*/nʊ́m/
	//mã́·ɣ//	turn aside	*/mã́·ɣ/

The analysis of a nasal //V// as oral before final //ɣ,ʊ̃,m// is comparable with the analysis of a front //V// as back before final //y// or of a back //V// as front before final //w//.

6.19 In stems with final //w,ʊ̃// there is invariably a back //V// if the initial //C// has both //w// and //y//, although such //C//'s are always followed by a front //V// in //CV// stems, e.g.

//ʂwyɻ̃w//	rub	//hwyuw//	scoop
//kwyɔ́w//	wait	//ʊ̃yɔ́ʊ̃//	stay awake

The back vowels are accordingly analysed as front in the reconstructed form, so that the above examples are analysed as follows:

*/ʂwyɻ̃y/ */hwyiy/ */kwyéɣ/ */ʊ̃yéɣ/

6.2. Stems with medial //r,n(w̃),m// preceded by //i,u//

6.21 Stems with medial //r,n(w̃),m// preceded by //i,u// are all of the pattern //CVCV(C)//, e.g.

//kyirá//	show	//mɪ̃nɪ̃m//	swell
//kirá//	order	//mũnã́//	send
//kurṍw̃//	be high	//mñ̩ñ̩á//	get dark
//kyɪ̃ñ̩á//	stroll about	//swũmã́//	send on errand

There are no //CVCVC// stems in which the medial //C// is //r// or //n(w̃)// and the final //C// is //r// or //n//. There are no //CVmCV// stems, and no //CVmV// stems in which the final //V// is not //a//. Each stem constitutes two tone-bearing units.

//nw̃// and //n// are of course complementary, as they occur only before back and non-back vowels respectively, and //nw̃// is therefore analysable simply as */n/, e.g.

//mñ̩nw̃ñ̩m//	cover	*/mñ̩nñ̩m/

The first //V// is oral only before //r// and nasal only before //n(w̃),m//, and is therefore always analysable as an oral */V/. Also, //r// and //n(w̃)// occur only before oral and nasal vowels respectively except that //r// sometimes occurs before a nasal vowel which is followed by a final nasal //C//,

as in //kuróẅ// "be high". The exception can be disposed of by analysing the nasal //V// following the //r// as an oral */V/ (e.g. */kuróẅ/) since, as in stems without any medial //C//, //V//'s are invariably nasal before final nasal //C//'s. //r// and //n(ẅ)// are then complementary, and both are therefore analysable as */r/; the eight examples are therefore analysable as follows:

*/kyiré/	*/kuróẅ/	*/mirím/	*/mụrã́/
*/kirá/	*/kẹyịmá́/	*/murá́/	*/swumá́/

If the second //V// is front or back (in which case the medial */C/ will be */r/ in the reconstructed form), the first also is front (//i,ị//) or back (//u,ụ//) respectively except that in //CVrVw// stems the first may be front though the second is back, e.g. //kyiróẅ// "write". The exception can be disposed of by analysing the back //V// following the //ir// or //ịr// sequence as a front */V/ (e.g. */kyiréẅ/) since, as in stems without any medial //C//, //V//'s are invariably back before final //w//. The two */V/'s are then either both front or both back except when the second */V/ is */a/.

Again if the second //V// is front or back, the first //V// has //ˌ// if and only if the second has //ˌ//. Except where the second //V// is //a//, then, the identity of the first */V/

is entirely determined by the second */V/.

If the second //V// is //a// (in which case it will not have //ˌ//), the first //V// may be either //i// or //u// and may be either with or without //ˌ// (in which cases the medial //C// will also be with or without //ˌ// respectively), e.g.

//kirá//	order	//swūmá//	send on errand
//kyɨrɨmá//	stroll about	//furá//	wear

The first */V/ thus has the same values in */CVCV(C)/ stems as in */CVV((ˑ)C)/ stems, in which it constitutes the medial */V/ extension: it is */i/ or */u/ with or without */ˌ/ if the next */V/ is */a/, but otherwise */i/ or */u/ according to whether the next */V/ is front or back, and with or without */ˌ/ according to whether the next */V/ is with or without */ˌ/.

6.22 This suggests analysing //CVCV(C)// stems as */CVV((ˑ)C)/ stems further extended by a medial */r/ or */m/. A problem is presented, however, by the fact that //Cira(C)// and //Cinā(C)// stems do not have //y// with the initial //C//, e.g.

//kirá//	order	//tinā//	sit
Cf. //kyír//	catch	//tyín//	creep

*/CVV((ˑ)C)/ stems in which the first */V/ is */i/, on the other hand, do have */y/ with the initial */C/, e.g.

//kyaá//	become twisted	*/kyi·á/
//tyãá//	beat	*/tyi·á/

The */i/ was, in fact, postulated largely in order to account for this */y/. The solution proposed is to analyse //Cira(C)// and //CĩnãC)// stems as not containing any medial */y/ extension, so that the two examples quoted, for instance, are analysed as */krá, trá/ rather than as */kirá, tirá/.

No difficulties arise in the analysis of the remaining //CVCV(C)// stems as */CVV((·)C)/ stems further extended by a medial */r/ or */m/, e.g.

//kviré//	show	*/kyiré/
//kurów//	be high	*/kuróy/
//kyĩɲá//	stroll about	*/kyiɲá/
//mĩnĩm//	swell	*/mirím/
//mũná//	send	*/murá/
//ɲũɲá//	get dark	*/ɲuɽá/
//swũmá//	send on errand	*/swumá/
//ɲũnwũm//	cover	*/ɲuɽum/
//kyirów//	write	*/kyiréy/
//ʂwuɽó//	be afraid	*/ʂwuɽó/
//piɽów//	roll	*/piɽéy/
//hyiɽá//	bless	*/hyiɽá/

6.23 The statement already made of the structure of stems with no medial */C/ (see pp. 150-1) may now be revised as follows to include stems with medial */r,m/:

(a) Each stem has a */CV/ nucleus.

(b) This nucleus may be extended by a medial */V/, or a medial */C/, or a final */C/, or any combination of these.

(c) A stem with no extension constitutes one tone-bearing unit; a stem with a medial */C/ constitutes two tone-bearing units; any other stem may constitute either one or two tone-bearing units.

In the following table showing all the different combinations, the */C/ and */V/ of the nucleus are underlined:

		No medial */C/		Medial */C/
		One unit	Two units	Two units
No medial */V/	No final */C/	CV		CCV
	Final */C/	CVC	CV·C	CCVC
Medial */V/	No final */C/	CVV	CV·V	CVCV
	Final */C/	CVVC	CVV·C	CVCVC

6.3 Other stems

6.31 The remaining stems are all of the pattern //CV(W)CV(C)//, e.g.

//bíʂya//	ask	//kámfu//	praise
//bʊ́twʊw//	turn over	//pótyi//	scrape
//fítyuw//	knead	//bʊ́ỹkam//	overwhelm
//háta//	spread out in sun	//mʊ́ntwʊm//	upset

They all have two tone-bearing units. No examples have been found in which the //C// of the second //CV// sequence is //r// or //n(W)//, and only one, namely /syámān/ "summons", in which it is //m//; this stem is almost certainly a borrowing, although borrowed verb stems are extremely rare.

The second half is always analysable in the same way as a //CV(C)// stem, i.e. as */C(V)V(C)/, e.g.

//bíʂya//	ask	*/bíʂyʲa/
//fítyuw//	knead	*/fítyiy/

The //CV// of the first half is similarly analysable as */C(V)V/, e.g.

//bʊ́ỹkam//	overwhelm	*/bʊ́ỹkam/
//kámfu//	praise	*/kámfu/

//ṣyáỹka//	get stuck	*/ṣyi̱áỹka/
//nántyuw//	walk	*/nántyiy/
//syákyir//	change	*/syiákyir/

The //CV// of the first half, however, differs from the //CV// of //CV// stems in that those consonants which can occur without //y// or //w// before //a// never occur with //y// but not //w// before front vowels, e.g.

	//ḳ̱íṭ̱ya//	hold	*/ḳ̱íṭ̱yi̱a/
	//pésyow//	put in disorder	*/pésyey/
Cf.	//ḳ̱yṭ̱//	squeeze	*/ḳ̱yṭ̱/
	//pye//	like	*/pye/

In this respect the //CV// of //ḳ̱íṭ̱ya//-type stems is like the //CV// of //CV-// prefixes, e.g.

	//okéyé//	he goes and does it
	//obéyé//	he will do it
Cf.	//kyé//	divide
	//oyé// (noun stem)	proverb

6.32 If the first half has a final //N//, it will be written */n/ in the reconstructed form, e.g.

//ḇỹkam//	overwhelm	*/ḇỹnkam/

//mṵ́ntwṵ́m//	upset	*/mṵ́ntwṵm/
//kámfu//	praise	*/kánfu/

The first half invariably has this final */n/ if (i) the first half has an initial nasal */C/, or (ii) the second half has a final nasal */C/.

6.33 The first half invariably has //ˌ// with its //V// and its initial //C// if the second half has //ˌ// with its //V// or its initial //C//; earlier examples illustrate. The relation of the first half to the second resembles, in this respect, the relation of a prefix to a stem. The second half will therefore be analysed as having */ˌ/ with its initial */C/ if it has */ˌ/ at all, and the first half will be analysed as having */ˌ/ only if the second half has no */ˌ/, e.g.

//bíʂya//	ask	*/bíʂyi̱a/
//bṵ́i̱twṵw//	turn over	*/bṵ́i̱twṵy/
//bṵ́ỹkam//	overwhelm	*/bṵ́nkam/
//mṵ́ntwṵ́m//	upset	*/mṵ́ntwṵm/
//ʂyi̱ỹka//	get stuck	*/ʂyi̱ánka/

//ẹ// occurs to the exclusion of //ạ// in the first half as in prefixes, so that where the second half is analysed as having */ˌ/, an //ẹ// of the first half is analysable either as */e/ or as */a/ as it is in prefixes (see pp. 30 and 76). It will

be analysed as */e/ except where there is a clear advantage to be gained from analysing it as */a/, e.g.

//ɾɛ̱ɣɣɪ̱m//	be preferable	*/fenyi̱m/
but //kwɛ́tyi̱r//	avoid	*/kuátyi̱r/

In the second example, which is the only one of its kind which has been found, the analysis as */a/ avoids the sequence */ue/, which does not occur in */CV(')V/ stems.

6.34 The second half has initial //t// in about half of the stems, and initial //s// in about half of the remainder.

6.35 Because of the prefix-like qualities and other special features of the first half, the */CV/ nucleus of the second half is considered to be the nucleus of the stem as a whole, and the */CV/ nucleus of the first half to be subordinate. The discussion of the */CV/ nucleus of stems in general under the next heading disregards the special features of these subordinate nuclei.

6.4 The */CV/ nucleus

6.40 All the extensions to the */CV/ nucleus have now been dealt with in detail, but it still remains to examine the nucleus itself.

6.41 */˳/ with the */C/ is, of course, merely a device which indicates that preceding vowels have */˳/. It becomes superfluous with the postulation of the medial */V/ extension, as the */C/ then has */˳/ if andonly if the following */V/ has */˳/. It will not, therefore, be written in the reconstructed form, so that //ɖyɨ́// "eat", //ʂyaá// "greet", for instance, will be written */dyɨ́, kyɨ̣́á/.

Also as a result of the postulation of the medial */V/ extension, the */C/ has */y/ and not */w/ only if the following */V/ is front. Except in //ʂɐ̣́f// "weigh", a */C/ without */w/ fails to have */y/ before a front */V/ if and only if the */C/ is labial and the */V/ is */i/, e.g.

//fi//	vomit	*/fi/
//fɨ́//	leave	*/fɨ́/
//pyɨw//	thicken	*/pɨy/

The failure is, of course, attributable to the fact that a labial /C/ cannot occur with /y/ before /i/. Every */C/ which does not have both */y/ and */w/ will accordingly be analysed as not having */y/ (the question of /ʂɐ̣́f/ will be considered presently). If before this analysis the /C/ is merely */y/ or */ɣ/, the */C/ will be analysed as */ɦ/ or */ʁ/ ([ɦ] being voiced [h]) respectively; this analysis is suggested

by the fact that the realisations of /y,w,wy,ỹ,w̃,w̃ỹ/ are generally the voiced equivalents of those of /hy,hw,hwy,h̃ỹ, h̃w̃,h̃w̃ỹ/. Examples are:

//ḍyi̤//	eat	*/di̤/
//ḳyaá//	greet	*/ki̤ˑá/
//pye//	want	*/pe/
//kyé//	divide	*/ké/
//yé//	make	*/ɦé/
//ỹa//	get	*/ɲ̃i̤a/

Similarly, the */C/ of the reconstructed form has */w/ but not */y/ only if the following */V/ is back. A */C/ without */y/ has */w/ before a back */V/ if and only if (i) the */C/ is alveolar, or (ii) the */C/ is */w/ or */w̃/, or (iii) the */C/ contains */h/ or */h̃/ and the */V/ is */o/, e.g.

	//twó//	buy	*/twó/
	//wu//	bear (child)	*/wu/
	//hwor//	swell	*/hwor/
but	//bó//	strike	*/bó/
	//bṳ//	fell	*/bṳ/
	//h̃ũn//	see	*/h̃ũr/
	//bwé̤ˑɣ//	open	*/buɻ́ˑɣ/

Every */C/ which does not have both */y/ and */w/ is therefore be analysed as not having */w/; a */C/ consisting only of */w/ or */w̃/ is analysed, of course, as */ɦ/ or */ɦ̃/ respectively. The above examples are thus analysed as */tó, ɦu, hor, bó, bụ, ɦ̃ụ́r, bụọ́·ɦ̃/.

All */C/'s containing no element other than */y,w,~/ have now been analysed as containing */ɦ/ or */ɦ̃/ with the exception of */wy,w̃ỹ/, which will now be brought into line and analysed as */ɦwy,ɦ̃w̃ỹ/, e.g.

//wyí//	chew	*/ɦwyí/
//w̃ỹín//	weave	*/ɦ̃w̃ỹír/

The stem //kẹ·ŕ// "weigh" is irregular in having //k// without //y// before a front vowel in its base form. This irregularity can, however, be disposed of by attributing the raising to the final */C/ extension and analysing the //ẹ// as */a/, thus: */ka·ṛ́/; compare the analysis of //kwẹ́tyịr// "avoid" as */kuátịr/ (pp. 164-5).

The */C/'s which occur in the */CV/ nucleus are now as follows:

p	t	k	kwy
b	d	g	gwy
f	s	h	hwy
m	n	ñ	ñwy
		ʁ	ʁwy
		ʁ̃	ʁ̃wy

Now the */C/ of the nucleus is */b,d,h,hwy,ʁ,ʁwy/ only if the */V/ is oral, and */m,n,ñ,ñwy,ʁ̃,ʁ̃wy/ only if the */V/ is nasal, so that the nasal */C/'s can be dismissed as nasal variants of the oral */C/'s, e.g.

//mã//	give	*/bã/
//nʉ́m//	drink	*/dʉ́m/
//ñ̥ʉ̥́n//	see	*/hʉ̥́r/
//ɣɪ̥//	have (in negative)	*/ʁɪ̥/
//ɣwɣín//	weave	*/ʁwɣír/

The final list of */C/'s which occur in the */CV/ nucleus is therefore as follows:

p	t	k	kwy
b	d	g	gwy
f	s	h	hwy
		ʁ	ʁwy

Compare with this the entirely different list of */C/'s which occur in medial and final extensions: */r,m,y,ɣ/.

6.42 In the */CV/ nucleus, */e,o/ have */̩/ if and only if the nucleus is extended by a medial */i̯/ or */u̯/, e.g.

//yé//	make	*/ɾé/
//yę́//	be good	*/ɾi̯ę́/
//kurɔ́w//	be high	*/kuróɣ/
//ʂwu̯rǫ́//	be afraid	*/su̯rǫ́/

*/e,o/ can therefore always be analysed as not having */̩/, so that the above examples, for instance, are analysed */ɾé, ɾi̯é, kuróɣ, su̯ró/. Since */a/ never occurs with */̩/ in a */CV/ nucleus, the only */V/'s which do occur with */̩/ are then */i,u/.

Except in the two stems //mɔ́// */bu̯ɔ́/ "be bad" and //kɔ́// */ku̯ɔ́/ "divorce", the only */V/'s which have been found to occur with */̃/ in the */CV/ nucleus are */i,u,a/. The two irregular stems, which appear to be confined, at least in their irregular form, to the Fante dialects, may well be due to a dialectal vacillation which occurs in many stems between //i,u// on the one hand and //ę,ǫ// on the other; //gyę́// */gi̯e/ "accept", for instance, is in Cape Coast Fante //gyi// */gi/, and //gwyín// */gwyír/ "think", though it is the same in C. C. F., is //gwyę́ŋ// */gwyi̯éŋ/ in Akuapem Twi. The fact that there

are two irregular stems with //ə̯// and none with //ɛ̯,ɔ̯// without //ˌ// lends weight to this hypothesis.

If the two irregular stems are disregarded, the */V/'s which occur in the */CV/ nucleus are then as follows:

i	e	a	o	u
i̯				u̯
ɪ		ɐ		ʊ
ɪ̯				ʊ̯

6.43 In the */CV/ nucleus, then, the */C/ has fourteen different values and the */V/ twelve. Each */CV/ combination which has been found to occur in a */CV/ or a */CV(ˑ)C/ stem is illustrated in the following table by one such stem, both in its reconstructed form and (in round brackets) in its base form:

	p	t	k	kwy
i	*pir (pir) strive	*ti (tyi) dwell	*kír (kyír) catch	
e	*pe (pye) like	*téy (tyów) plant	*ké (kyé) divide	*kwyéȳ (kwyów̄) wait
a	*pa (pa) pass	*tár (tár) stick	*ka (ka) bite	XXX[1]
o	*por (por) strip off	*tó (twó) buy	*kór (kór) go	XXX[1]
u	*puy (puw) refuse	*tú (twú) put	*kú (kú) sit	XXX[1]
i̱	*pi̱y (pyu̱w) thicken	*tí̱y (tyú̱w) pursue	*ki̱r (kyi̱r) hate	*kwyi̱·ŕ (kwyi̱·ŕ) slander
u̱	*pú̱y (pú̱w) spout	*tu̱ (twu̱) uproot	*kú̱r (kú̱r) roof	XXX[1]
ɪ	*pɪ·ŕ (pɪ·ń) agree	*tíɪr (tyíɪn) creep	*kɪ (kyɪ) dawn	*kwyɪ (kwyɪ) pull
ă		*tă (tă) fart	*kǎ́ (kǎ́) touch	XXX[1]
ū	*pūr (pūn) finish	*tū (twū) bake	*kū (kū) fight	XXX[1]
ɪ̱	*pɪ̱́r (pɪ̱́n) approach	*tɪ̱ (tyɪ̱) scratch	*kɪ̱ (kyɪ̱) squeeze	
ų̱			*kų̱́ (kų̱́) kill	XXX[1]

	b	d	g	gwy
i	*bi·ŕ (bi·ŕ) ripen	*di (dyi) take		*gwyi (gwyi) cool
e	*béȳ (byéȳ) approach	*dey (dyow) blaze		
a	*bá (bá) come	*da (da) lie	XXX[2]	XXX[1]
o	*bó (bó) strike	*do (dwo) be deep		XXX[1]
u	*búy (búw) get drunk	*dúy (dwúw) go brown		XXX[1]
i̱	*bi̱·ŕ (bi̱·ŕ) go black	*di̱ (di̱yi̱) eat		*gwyi̱r (gwyi̱r) run away
u̱	*bu̱ (bu̱) fell	*du̱r (dwu̱r) reach	*gu̱ (gu̱) cast down	XXX[1]
r̈	*br̈ (mr̈n) swallow	XXX[3]		*gwyr̈ (gwyr̈n) think
ã	*bã (mã) give	*dãm (nãm) walk	XXX[2]	XXX[1]
ũ	*bũ (mũ) put on	*dṹm (nwṹm) drink		XXX[1]
r̈̃		XXX[3]		
ũ̱		*dũ̱ (nwũ̱) pick		XXX[1]

	f	s	h	hwy
i	*fi (fi) vomit	*síy (syúw) sharpen	*hi (hyi) burn	*hwyi (hwyi) beat
e	*fém (fyém) borrow	*se (sye) be alike	*hé (hyé) put on	*hwyé (hwyé) look
a	*far (far) take	XXX[2]	*háy (háy) trouble	XXX[1]
o	*fóy (fów) get wet	*só (swó) light	*hoy̆ (hw̆) pull out	XXX[1]
u	*fuy (fuw) climb	*su (swu) carry	*hur (hur) wash	XXX[1]
i̥	*fi̥ (fi̥) leave	*sí̥ (syí̥) build		*hwyi̥m (hwyi̥m) snatch
u̥	*fúy (fúw) sprout	*sú̥y (swú̥w) wear thin	*hú̥y (hú̥w) blow	XXX[1]
ɪ		*sɪ́ (syɪ́) mend		
ă	*fă (fă) pursue	XXX[2]		XXX[1]
ŭ	*fŭr (fŭn) stir up	*sŭ (swŭ) suffice	*hŭ́r (hŭ́n) dissolve	XXX[1]
ɪ̥			*hɪ̥ (hɪ̥) [illegible] be spent	
ŭ̥		*sŭ̥́ (swŭ̥́) weep	*hŭ̥́r (hŭ̥́n) see	XXX[1]

	ʁ	ʁwy
i	*ʁíy (yíw) get lost	*ʁwyí (wyí) chew
e	*ʁé (yé) make	*ʁwyéɣ (wyów) stay awake
a	xxx[2]	xxx[1]
o	*ʁo (wo) have	xxx[1]
u	*ʁu (wu) bear (child)	xxx[1]
i̥	*ʁi̥ (yi̥) remove	
u̥	*ʁu̥ (wu̥) die	xxx[1]
ɪ		*ʁwyíɾ (wyín) weave
ə	xxx[2]	xxx[1]
ɐ		xxx[1]
ɪ̥	*ʁɪ̥ (ɣɪ̥) have (in negative)	*ʁwyɪ̥ɾ (ɣyɪ̥n) leak
ɣ̥		xxx[1]

Notes:

1. */kwy, gwy, hwy, ɦwy/ occur before front vowels only.

2. */g, s, ɦ/ occur before */a, ã/ only where there is a medial */V/ extension, e.g.

*/gi̯a/ //gya//	accompany	*/gu̯a/ //gwa//	cut up (meat)
*/siã/ //syã//	get spent	*/ɦia˙f/ //ya˙f//	be ill

3. */d/ does not occur before nasal front vowels; if it did, one would expect it to be realised as "/nỹ/", as it is always realised as /n(w̃)/ before nasal non-front vowels and with /y/ before oral front vowels. The phoneme cluster "/nỹ/" does not, however, occur in the Conf. F. dialect; stems in which the Akuapem Twi dialect would lead one to expect it have simply /ỹ/, e.g.

	Akuapem Twi	Conf. F.	
	*/di̯/ //ni̯//	*/ɦi̯/ //ỹi̯//	have (in negative)
	*/di̯m/ //ni̯m//	*/ɦi̯m/ //ỹi̯m//	know
Cf.	*/yi̯ŋ/ //ỹi̯ŋ//	*/ɦi̯r/ //ỹi̯n//	grow

4. */g/ is much rarer than */b/ or */d/ on the one hand or than */k/ on the other. The great majority of the nuclei in which it does occur either contain */,/ or are extended by

a medial */V/ with */ˌ/, e.g.

*/gi̱a/ //ɣya//	accompany	*/gu̱a/ //ɣwa//	cut up (meat)
*/gi̱e/ //ɣye̱//	accept	*/gu̱or/ //ɣor//	play

Only one example has been found in which it occurs in a nasal nucleus: */gi̱rá/ //ɣyi̱ⁿdá// "stand".

5. The remaining blanks in the table would appear to be fortuitous.

6.5 The tone patterns

6.51 Stems with only one tone-bearing unit are either high or low; stems with two are either low-high or high-low.

6.52 In one-unit stems the tone is entirely independent of the non-tonal structure, but in two-unit stems it is generally low-high or high-low according to whether the stem has one or two */CV/ nuclei, e.g.

One */CV/ nucleus		Two */CV/ nuclei	
*/kiréy/ //kyirów//	write	*/kásia/ //kásya//	speak
*/su̱má/ //swu̱ⁿdá//	hide	*/kánfu/ //kámfu//	praise
*/wyi̱ˑé/ //wye̱é//	finish	*/dántiy/ //ntyuw//	walk
*/paˑý/ //paˑý//	curse	*/ʰúsuy/ //wúswuw//	shake

There are, however, the following exceptions among the stems with only one */CV/ nucleus:

(a) All */C(V)V·C/ stems in which the final */C/ is */ɟ/ and most in which it is */y/ or */ʒ/, e.g.

*/pu̩ó·ɟ/ //p̩wɛ́·ɟ//	go out	*/bá·ʒ/ //má·ʒ//	turn aside
*/só·ʒ/ //swɔ́·ɟ//	filter	*/pá·y/ //pá·y//	split
*/tí·ʒ/ //tyí·ɟ//	straighten	(cf. */pa·ɟ/ //pa·ɟ// "curse")	

It is worth noting that as a general rule these stems correspond in Bawle, a related language spoken in the Ivory Coast, to stems with medial [k,ŋg,c,ɲɟ], e.g.

Fante	Bawle	
*/pu̩ó·ɟ/	[kpuke]	go out
*/tí·ʒ/	[tíŋge]	straighten
*/pá·y/	[kpaci]	split
*/só·ʒ/	[soɲɟi]	filter

The Fante stems have the same tone pattern as they would have if they had the same shape as the corresponding Bawle stems.

(b) The */CV·C/ stems */tú̩·m/ //t̩wú̩·m// "be able" and */só·r/ //swɔ́·r// "rise".

(c) The */CVCV/ stem */bíre/ //bíre// "bring".

6.53 Some stems have no lexical tones as they occur only in the continuative tense, in which lexical distinctions of tone are neutralised by the low tone tense affix (se pp. 119-20). Examples of such stems are */ɓo/ //wo// "have", */ɓi̱m/ //ɣi̱m// "know", */fenyi̱m/ //fɛ̱ɣɣi̱m// "be preferable". Those which have only one tone-bearing unit (as have most of them) must not be confused with one-unit stems with lexical low tone, such as */da/ //da// "lie", */far/ //far// "take".

6.6 The prefixes and suffixes

6.61 The following features of the non-zero prefixes have already been noted:

(a) They have the patterns //CV-, V-, N(:)-// in their base form.

(b) The //CV-// and //V-// prefixes never have //ˌ// in their base form, but have preconsonantal alternants with /ˌ/ before stems with //ˌ//.

(c) The //CV-// prefixes other than //ye-// "we" and //wo-// "they" always have front vowels in their base form, but have preconsonantal alternants with back vowels before stems

which, in the reconstructed form, begin with a */CV/ sequence in which either the */V/ is back or the */C/ has */wy/.

The situation described under (c) suggests analysing //ye-// "we" and //wo-// "they" as */ye-, we-/, and accounting for their preconsonantal alternants by saying that */CV-/ prefixes in which the */C/ is */y/ or */w/ do not have preconsonantal alternants in which the /V/ is back or front respectively. In all */CV-/ prefixes the */V/ is then either */i/ or */e/ (without */ˌ/ but not necessarily without */˜/). This analysis is the reverse of that applied to phonetically similar /CV/ stems in that the frontness or backness is allocated to the */C/ in the prefixes but to the */V/ in the stems, e.g.

Prefixes		Stems	
//ye-// */ye-/	we	//yé// */ɦé/	make
//wo-// */we-/	they	//wo// */ɦo/	have

The analysis of the prefixes is rather to be compared with that of the final */VC/ of stems, e.g.

//syé·y// */sé·y/ (via */syé·y/)	spoil
//syów// */séy/ (via */syéw/)	spread out

Except in the case of /mĩ-/ "I", all /CV-/ and /V-/ prefixes are oral throughout. /mĩ-/ is accordingly analysed as */mi-/, so that in */V-/ and */CV-/ prefixes the */V/ is always without */˜/ just as it is always without */ˌ/. Note that the nasality, just like the frontness in /ye-/ */ye-/ "we" and the backness in /wo-/ */we-/ "they", is allocated to the */C/ rather than the */V/; compare again the same allocation in the final */VC/ of stems (e.g. /pĩm/ */pim/ "knock") and the reverse allocation in the */CV/ nucleus of stems (e.g. /mĩn/ */bĩr/ "swallow").

The treatment of the //C//'s of /CV-/ prefixes as comparable to the //C//'s of stem extensions rather than to the //C//'s of stem nuclei is supported by the fact that //r//, which never occurs as the //C// of a nucleus though it occurs frequently as the //C// of a final or medial extension, occurs as the //C// of one of the /CV-/ prefixes, namely the tense prefix /ri-/.

The non-zero prefixes may be grouped as follows according to the structure of their reconstructed forms:

*/V-/ */a-/ (tense), */i-/ (person)

*/N(:)-/ */n-/ (tense), */n:-/ (negative)

*/Ci-/ */ri-/ (tense), */mi-/ (person)

*/Ce-/ */bé-, ké-/ (ingressive), */bé-/ (tense), */ye-, we-/ (person)

6.62 The base forms of the non-zero suffixes (see pp. 97-101) are comparable in structure to those of independent stems and will not therefore be considered here.

7 # THE GRAMMATICAL CATEGORIES OF THE VERB

7.01 This chapter is concernad with the grouping of the affixes of the verb according to their grammatical function in relation to each other; affixes or combinations of affixes are allocated to the same category or to different categories according to whether or not they stand in contrast.

7.02 For this purpose the verb is taken to be the verbal word minus all affixes which are grammatically equivalent to independent words or which are not necessarily part of the verbal word. The distinction between the verb and the verbal word was discussed at the beginning of the chapter on phonemically conditioned alternation.

The only suffixes which are necessarily part of the verbal word are the personal suffixes //-mi// "me", //-wu// "you (singular)", etc., the tense suffix /-yi/, and the pre-object case suffix //-://. Of these, the personal suffixes are outside the verb as they are grammatically objects, e.g.

Suffix object	Word object
//orúhwye·m//	//orúhwye kofi//
he is looking at me	he is looking at Kofi
//orúhwyo·w//	
he is looking at you	

The personal prefixes, on the other hand, are not grammatically subjects as they are not mutually exclusive with word subjects; where the verb has a word subject it invariably has the indefinite personal prefix ∠:-∠ as well, e.g.

Without word subject	With word subject
//okásya//	//kofí :kásya//
"he speaks"	"Kofi speaks"
//óhwye//	//kofí :hwye//
"he looks"	"Kofi looks"

The grounds for postulating the indefinite personal prefix were discussed in the chapter on phonemically conditioned alternation (see pp. 115-7).

The verb, then, consists of the verbal word minus all suffixes other than the tense suffix //-yi// and the pre-object case suffix //-://.

7.1 The category of mood

The subjunctive high tone affix is the only affix in its category, and verbs are therefore analysable as being in the subjunctive or indicative mood according to whether the affix is present or not.

The basic function of the subjunctive, in Fante as in French, is to show the relation of the clause to the rest of the sentence, in much the same way as a case affix shows the relation of a noun to the rest of the clause; it is no more in direct contrast with the indicative than, say, English 'he' is in direct contrast with 'him'. The category might, in fact, be more appropriately described as one of clause-case than as one of mood. A full account of the uses of the subjunctive would be beyond the scope of this thesis, but the following are the most important:

(a) In relative clauses, e.g.

//abufírá a ɔrú¹kɔ́·fí//	the boy who is going (lit. "boy that he-is-going-that")
//hí́n nā ɔrú¹kɔ́·fí//	Where is he going? (lit. "where that he-is-going")
Cf. //ɔrúkor//	he is going

(b) In clauses introduced by //dée:// "that" after certain verbs, e.g.

//opye dée: ɔfá·fí//	he wants to take it (lit. "he-wants that he-take")
//owo dée: ɔfá·fí//	he must take it (lit. "it-is that he-take")

Cf. //mɨɣɣɨm dée: ofar// I know that he takes it

7.2 The category of case

In regular verbs the pre-object case suffix /-:/ does not contrast with any other affix, but it was found necessary to postulate an affix of pre-sequel case to account for an irregularity which occurred with verbs in which the stem was one of a certain list of five (see pp. 139-40). Verbs in general are accordingly analysable as being in (i) the pre-object case or (ii) the final case, and verbs in which the stem is one of the five referred to are analysable as being in (i) the pre-object case, (ii) the pre-sequel case, or (iii) the final case. Verbs of the main class, of course, are in the final case in circumstances in which verbs of the special class are in the pre-sequel case.

7.3 The category of person

Every verb has one and only one of the six personal prefixes, so that there is a six-member category of person as follows:

/mɪ-/ "I"	first person singular
/i-/ "you (singular)"	second person singular
/o-/ "he, she, it"	third person singular
/ye-/ "we"	first person plural
/wo-/ "they"	third person plural
/:-/ (indefinite)	indefinite person

7.4 The category of quality

The negative prefix /n:-/ and the negative high tone affix do not contrast with each other or with any other affix, and verbs are therefore analysable as being in the negative or affirmative quality according to whether a negative affix is present or not.

All negative verbs have the prefix /n:-/, but the high tone affix occurs only in certain tenses as stated below in the discussion of the tenses.

7.5 The category of tense

7.51 In affirmative but not negative verbs the following affixes and combinations of affixes are in contrast:

(a) The tense prefix /ri-/, which indicates that an action is in progress, e.g.

//orikásya// he is speaking

(b) The tense prefix //bé-//, which indicates future time, e.g.

//obékásya// he will speak

(c) The tense prefix //a-//, which indicates future time in a verb which is a sequel to a verb in tense (a) or tense (b), e.g.

//orikásya |akyiré'ń// he is speaking to me (lit. "he-is-speaking will-show-me")

//obékásya |akyiré'ń// he will speak to me (lit. "he-will-speak will-show-me")

Sequels to verbs in other tenses generally have the same tense as the preceding verb, e.g.

//wa|íkásya |:ákyíré'ń// he has told me (lit. "he-has-spoken has-shown-me")

(d) The tense prefix //a-// plus the perfect tense high tone affix, which together indicate that an action has been completed, e.g.

//wa|íkásya// he has spoken

(e) The tense affix of low tone, which indicates that the state of affairs resulting from a completed action prevails, e.g.

//ǫfuŋa :tā́·ḿ!// he is wearing a cloth, he has a cloth on

Compare the same sentence in tense (d):

//wę́fúŋá :tā́·ḿ!// he has put on a cloth

Many stems never occur in tense (e), while some stems never occur in any other tense.

(f) The tense affix of low tone plus the tense prefix //n-//, which occur together only in the subjunctive and which together indicate a command, e.g.

//mā́ ó·ỹkásya// he is to speak, let him speak

//mí·ỹkásya:// "Am I to speak?", "May I speak?"

(g) The tense suffix of high-low tone with or without the tense suffix //-yi//, which indicates past time, e.g.

//okasyáa·y// he spoke

//okasyáa ntḗ·ḿ!// he spoke quickly

The suffix //-yi// occurs in the final case and the pre-sequel case but not in the pre-object case.

In contrast with these affixes and combinations is:

(h) The absence of any tense affix, which indicates habitual action, e.g.

//okásya// he speaks

//ofurá :tá·mí:// he puts on a cloth

An eight-member category of tense is therefore postulated as follows:

(a) progressive
(b) future
(c) consecutive
(d) perfect
(e) continuative
(f) imperative
(g) preterit
(h) habitual

7.52 In negative verbs only five tenses are distinguished:

(a) A future tense, indicated not by //bé-// but by //ri-//, e.g.

//orí·ỹ:kásya?// he will not speak

(b) A perfect tense, indicated not by //a-// plus the perfect tense high tone affix but by the affix of high-low tone with or without the tense suffix //-yi// (according to case; see tense (g) above), e.g.

//ó·ý:kásyáa·y?// he has not spoken

In this tense, as the example shows, the negative is

indicated by the high tone affix as well as by the prefix //n:-//.

(c) The continuative tense, indicated as in affirmative verbs, e.g.

//ọ̀·ḿ:fụ́ra :tá·ḿ:ˀ// he is not wearing a cloth, he does not have a cloth on

In this tense also the negative is indicated by the high tone affix as well as by the prefix //n:-//.

(d) A preterit tense, indicated not by the affix of high-low tone with or without the suffix //-yi//, but by the prefix //a-//, e.g.

//waa·ỹ:kásyaˀ// he did not speak

(e) The habitual tense, indicated as in affirmative verbs, e.g.

//o·ỹ:kásyaˀ// he does not speak

//ọ·m:fụrá :tá·ḿ:ˀ// he does not put on a cloth

The habitual, which is indicated by the absence of any tense affix, serves also as progressive, consecutive, and imperative, e.g.

//o·ỹ:kásyaˀ// he is not speaking

//o·ỹ:kásya | :ỹ:kyiré·ḿˀ// he is not speaking to me

//orí·ỹ:kásya |:ỹ:kyiré·ḿ?// he will not speak to me

//ḿá o·ỹ:kásya?// he is not to speak

It will be noted that in the negative only one tense sign, namely that of the continuative tense, has the same range of meaning as in the affirmative, and that the signs of the perfect and preterit tenses are in fact almost completely interchanged.

7.53 The consecutive and perfect affirmative tenses are not distinguishable in the subjunctive, since in the indicative they are distinguished only by the perfect tense high tone affix and in the subjunctive the manifestation of the subjunctive high tone affix has the effect of concealing that of the perfect tense high tone affix, e.g.

Indicative	Subjunctive
//obékásya |akyiré·ḿ//	// óbékásya |!ákyíré·ḿ!//
"he will speak to me"	
//wa‿ákásya |:ákyíré·ḿ//	// wá‿ákásya |!ákyíré·ḿ!//
"he has spoken to me"	

(Note that //akyiré·ḿ// is irregular in having a zero variant of the indefinite personal prefix //:-//; see pp 131-2).

7.6 The category of ingression

The ingressive prefixes //bé-, ké-// indicate that the action is preceded by coming or going respectively, e.g.

//wa‿ábékásya//	he has come and spoken
//wa‿ákékásya//	he has gone and spoken

Verbs are analysed as coming-ingressive, going-ingressive or non-ingressive according to whether they contain the ingressive prefix //bé-//, the prefix //ké-//, or no ingressive prefix.

The ingressive prefixes are obviously related to the stems //bá// "come", //kór// "go".

Habitual affirmative coming-ingressive verbs are indistinguishable from future affirmative non-ingressive verbs, since the habitual and the non-ingressive are both indicated by the absence of any affix and the coming-ingressive prefix is homophonous with the prefix which indicates the future in affirmative verbs; //obóhwyé//, for instance, may be either "he comes and looks at it" or "he will look at it".

The two homophonous prefixes never occur together, so that there is no future affirmative coming-ingressive; it is possible to say //obókóhwyé// "he will go and look at it" and //orú'm:!bóhwyé?// "he will not come and look at it" but

not "//obóbóhwyé//" "he will come and look at it". The meaning can always be conveyed by a serial construction with two separate verbs: //obébá |abóhwyé// (lit. "he-will-come will-come-look").

The coming- and going-ingressives never occur in the continuative tense. This can be put down to semantic incompatibility, as it would yield meanings such as "comes and is wearing a hat".

7.7 The category of iteration

The affix of reduplication generally indicates that an action takes place a number of times, e.g.

//obubó//	he strikes it repeatedly
Cf. //óbo//	he strikes it

The affix may occur twice, giving greater emphasis to the repetition, e.g. //obubóobo//. It never occurs twice, however, with a stem with more than one tone-bearing unit, or along with the tense affix of high-low tone.

Verbs are analysed as single-iterative, double-iterative or non-iterative according to whether reduplication occurs once, twice or not at all. Since no verbs with the tense

affix of high/-low tone are double-iterative, there are no preterit affirmative double-iterative or perfect negative double-iterative verbs.

Certain combinations of stem plus reduplication have idiomatic meanings, e.g.

Without reduplication		With reduplication	
//hwyé//	look at	//hwyuhwyé//	look for
//kãỹ//	count	//kĩ̃ỹkãỹ//	read
//ḍyí//	eat (transitive)	//ḍyiḍyí//	have a meal
//ṣyẹ́//	keep	//ṣyẹ́ṣyẹ́//	prepare
//kyiré//	show	//kyirékyire//	teach
//gyẹ́//	accept	//gyigyé//	annoy

Certain stems, also, never occur without reduplication, e.g.

//daádaa//	deceive	//kukwár//	avoid

CONCLUSION

A great deal of the alternation between low and high tone in Fante consists of tonal agreement with a preceding or following tone-bearing unit, just as a great deal of the alternation between oral and nasal vowels or between front and back vowels or between unraised and raised vowels consists of oral/nasal or front/back or unraised/raised agreement respectively with a preceding or following vowel or consonant. (The different types of tonal agreement are summarised on p. 124; oral/nasal agreement is described on pp. 55-6, 84 and 86-7, front/back agreement on pp. 77-8 and 82-5, and unraised/raised agreement on pp. 30-1, 42-3, 55-6 76-7 and 84).

Tonal agreement is very largely responsible for the phonemic status of /ꜜ/ (downstep between two high tones of the same sentence) and of /ˋ/ (slight rise towards the end of a prepausal high tone), just as front/back agreement is at least partly responsible for the phonemic status of consonants with /y/ or /w/ (that is, roughly speaking, palatalised or labialised consonants respectively). Consonants with /y/ and consonants with /w/ are basically variants which occur before front and back vowels respectively, but they

occur also before back and front vowels respectively where these are back and front only by virtue of front/back agreement (see pp. 82-3). Similarly, downstep is basically an automatic feature of the second of two high tones which are separated by one or more low tones, but it occurs also between two high tones which are separated by a high tone which is high only by virtue of tonal agreement; the downstep then occurs between the agreeing high tone and the high tone with which it is not in agreement. As for the slight rise towards the end of a prepausal high tone, it is basically an automatic feature of a high tone which is in pause and which is not borne by a unit of the pattern /CVC/, but it does not occur with a high tone which is high only by virtue of tonal agreement.

/ʔ/ (the glottal stop), except where it represents a separate morpheme, is basically an automatic feature of a tone-bearing unit of the pattern /CVC/ which is in pause. Since, however, a /CVC/ sequence sometimes consists of not one but two tone-bearing units, /ʔ/ has the function of distinguishing /CVC/ sequences which consist of one tone-bearing unit from those which consist of two. Since, also, the final /C/ of a /CVC/ unit is dropped in pause unless it is /m/, /ʔ/ has the additional function of distinguishing /CVC/

sequences which have lost their final /C/ from /CV/ sequences.

Where /ʔ/ does represent a separate morpheme, that morpheme forms part of a negative sentence or a conditional clause; negative sentences and conditional clauses do not in fact occur without this morpheme. Since these sentences and clauses have /ʔ/ not only finally but also at internal pauses, the morpheme is quite unlike an affix or a particle, and it is consequently suggested that since, in Fante, /ʔ/ is clearly an accentual rather than a consonantal phoneme, the morpheme is one of intonation.

APPENDIX I : SOME POINTS ON WHICH THE PRESENT ANALYSIS DIFFERS FROM PREVIOUS ANALYSES

Downstep, downdrift and mid tone

Previous writers have generally postulated three tones, high, mid, and low, the mid tone being a high tone which is a step lower than an immediately preceding high (or mid) tone; Christaller, for instance, describes mid tones as "high tones abating by one step or successive steps"[1]. At first sight the mid tone may seem to correspond exactly to the present writer's /ˊ/ (high tone) preceded by /ꜜ/ (downstep), but there is the difference that a high tone which is separated by one or more low tones from a preceding high tone in the same sentence (so that it has /ꜜ/ automatically) is taken to be a simple high and not a mid. Christaller does not say specifically whether such a high tone is lower than a preceding high tone or not, but examples in which he uses figures to represent tone patterns show it as being at the same level[2]. Rapp says that "A high tone following a low tone which is preceded by another high tone is between mid and high tone"[3]; he thus notes the lowering in pitch, but fails to identify it with that which distinguishes his mid tone from his high tone.

Schachter[4] adopts essentially the same position as Rapp; he writes:

> "The essential facts of the Twi tone system are schematized in Table 1. The columns of the chart show the tonal contrasts that occur in a given tonal environment: the tones of column 1 are those that occur in initial position (after pause); the tones of columns 2 through 8 are those that occur after the starred tone of the preceding column. The rows of the chart show the relative pitch levels of the contrasting tones, with the highest relative pitch corresponding to the top row, the lowest to the bottom row. While no attempt has been made to represent the actual pitch levels on the chart, the chart does reflect the relation of the tones

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1. Grammar, p. 15. 2. Grammar, pp. 15 and 63. 3. Introduction to Twi, p. 8. 4. Phonetic similarity in tonemic analysis, pp. 233-4.

Table 1

	1	2	3	4	5	6	7	8...
a	x	x*	x					
b			x*	x				
c				x*	x			
d					x*	x		
e						x*	x	
f							x*	x
g								x
...								
z	x*	x	x	x	x	x	x	x

in a given environment both to one another and to the preceding tone. Thus, tone a of column 3 is at the same level as tone a of column 2, while tones b and z are at successively lower levels.

"As the chart indicates, Twi has two contrasting tones after pause (column 1): tone a, relatively high, and tone z, relatively low. After tone z, the same two contrasting tones occur (column 2). After tone a (whether this tone a follows pause or tone z), there are three contrasting tones (column 3): tone a, tone z, and a tone somewhere between them, tone b. Tone b may be followed by tone b, tone z, or a tone somewhere between them, tone c (column 4); tone c may be followed by tones c, z, or d (column 5), tone d by tones d, z, or e (column 6), and so on. The three dots between rows g and z and the dots after the column heading 8 indicate that the chart may be expanded. Such an expansion consists of adding rows representing tones lower than g and higher than z, and of columns repeating the pattern of 3 through 8. Thus, if tone g in column 8 were starred, a following column would show these tonal possibilities: tone g, tone z, and a tone somewhere between them.

"The tonal sequence indicated by the asterisks on the chart (z-a-b-c-d-e-f) is entirely arbitrary. Tone z might have been starred at any time, in which case the tonal possibilities would once more have become those shown in column 2."

Here a footnote is added:

"This statement is something of a simplification. Actually, if tone a (or a series of tones beginning with a and not including z) is followed by tone z, and this z is in turn followed by another a, the pitch of

> the second a is lower than that of the first. Tone z, in such a sequence as a-z-a, operates as a kind of register-shifter, such that any tones that follow it are, as it were, in a lower key. The contrastive possibilities, however, are unaffected by the change of key, and the second a in the sequence a-z-a is identifiable as such by virtue of being the only tone other than z that occurs in its environment."

The three tones in each of Schachter's columns 3 to 8 correspond, of course, to the usual high, mid, and low, although he himself finally calls them high, high-change, and low. He thus notes both (i) the "change" by which his high-change differs from his simple high, and (ii) the "change of key" by which a high tone which is preceded by a low tone which is preceded in turn by a high tone is distinguished from that preceding high tone, but fails to identify them.

Welmers recognises the usual three tones, high, mid, and low, and also recognises what Schachter calls "change of key" as something different from his mid tone:

> "A second series of high tones in an utterance is slightly lower than the first, and each succeeding series is slightly lower than the one preceding it. E.g. /minní ntúmi' nnúm nsá/ [LLH L!HL L!H L!H][1] 'I won't be able to drink liquor' has four levels of non-low tones, all of which are phonemically high.
>
> "A mid tone within a succession of high tones is lower than the high tone following it. E.g. /dénkém kesí/ [HM L!H][1] 'a large crocodile'."[2]

If the second of these two statements were true, his lowered high tone would indeed be something different from his mid tone, but in every form of Fante or Twi known to the writer the so-called mid tone in the example quoted is in fact higher than the following high tone.

Welmers and Schachter do not, however, always agree as to what is a case of mid or high-change tone on the one hand and what is a case of lowered high or "change of key" on the other. Welmers recognises mid tone only in words in which

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1. The transcription used in examples from Welmers in this appendix is his own; the representation of the tone pattern in square brackets after the transcription has been added by the present writer to obviate the necessity for an explanation of Welmers' tone-marking system. 2. Grammar, p. 25.

there is a preceding high tone, with the following consequences:

(a) He analyses as a lowered high a downstepped high tone at the beginning of a word which is immediately preceded by a word ending with a high tone; he gives the example /oni'm sankú' bó/ [LL LH !H] "he knows how to play the organ" and compares it with /dénkém/ [HM] "crocodile"[1]. He claims that in these circumstances a lowered high tone "can still be distinguished from mid tone because the first high tone of a series is stressed, while a mid tone is never stressed". The present writer cannot hear this alleged difference in stress, and agrees with Christaller, Rapp and Schachter in looking upon the tone of /bó/ in the first example as being entirely comparable with that of /-kém/ in the second.

An obvious weakness of this analysis is that it does not allow for the fact that where a word boundary is flanked by two high tones the second is not necessarily lower than the first (see this thesis, pp. 57-8).

(b) He analyses as a lowered high a downstepped high tone which is preceded by a word-initial vowel or homorganic nasal which is high only by virtue of tonal agreement with the final high tone of a preceding word (see this thesis, pp. 58-9); he gives the examples /mbá ahín/ [LH L!H] or [LH H!H] "how many children?", /edú' enú'm/ [LH L!H] or [LH H!H] "fifteen". Christaller, Rapp and Schachter would say that the final tone of each of these examples was mid or high-change.

The contribution of the present thesis on this point might thus be summed up as the allocation of Schachter's "change of key" or Welmers' lowering of high tones to the same phoneme of downstep as distinguishes Schachter's high-change tone or Welmers' mid tone from simple high tone. This fits the phonetic facts more closely than do previous analyses.

A virtually identical situation has been described by F.D.D. Winston for Efik[2]. He recognises a phoneme of downstep which distinguishes what others have called mid tone from simple high tone, and uses the term <u>downdrift</u> for what Schachter calls "change of key". Unlike Schachter and his predecessors, however, he identifies downstep and downdrift at the phonetic level and distinguishes them only "from the

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1. Grammar, pp. 21-2. 2. The 'mid tone' in Efik. African Language Studies, 1 (1960).

point of view of distribution and function"[1]; downstep, which occurs only after a high tone, is phonemic and non-automatic, and downdrift, which occurs only after a low tone, is automatic and non-phonemic. The present writer considers that the separation of the two at the phonemic level is inconsistent with their identification at the phonetic level, quite irrespectively of the fact that one of them is automatic. There is nothing unusual about a phoneme being automatic in certain contexts, and the English phoneme /t/ provides a useful illustration. In some forms of English (though not the writer's), /t/ is automatic between /n/ and final /s,ʃ,θ/, e.g. /mints/ ("mints" or "mince"), /bentʃ, mentθ/ (the writer has /mints, mins, benʃ, menθ/). One effect of analysing the [t] as non-phonemic in this context, thereby analysing [mɪnts], for instance, as /mins/, would be to complicate the statement of the morphophonemics; /mint/, for instance, would have the plural /mins/. A similar complication is to be found in Winston's treatment of what he calls "initial-H" forms[2]; these are comparable with Fante words which have an initial vowel or homorganic nasal, have high tone on that vowel or nasal by virtue of agreement with the final high tone of the preceding word, and have downstep between the agreeing high tone and an immediately following high tone in the same word (see this thesis, pp. 58-9, and Welmers' examples /mbá ahín/ and /edú' enú'm/ quoted above). Winston writes:

> "The basic pattern, LH, is characterized by automatic downdrift whenever it is preceded by a H tone. The corresponding initial-H form preserves the downdrift, but this time in the form of downstep. The downstep may be thought of as a manifestation of the characteristic downdrift of certain words, which occurs when the L tone which normally conditions it is superseded by a H."

Unfortunately Welmers' Tonemics, Morphotonemics and Tonal Morphemes[3], which evidently deals with at least some of these questions, is not available at the time and place of writing.

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1. op. cit., p.189. 2. op. cit., p. 190. 3. General Linguistics, 4, 1-9 (1959).

The status of low tone

Welmers recognises the following five suprasegmental phonemes: (i) heightening of vowels (which corresponds to the present wtiter's raising of vowels, written /˙/), (ii) nasalisation, (iii) high tone, (iv) mid tone, and (v) low tone[1]. Thus in the unraised/raised and oral/nasal contrasts he accords phonemic status to one of the two contrasting features but not to the other, while in the high/mid/low contrast he accords phonemic status to each of the three contrasting features. The present writer recognises only three of Welmers' five suprasegmental phonemes; he allocates mid to the same phoneme as high (as was seen under the last heading), and in the low/high contrast he accords phonemic status to only one of the two contrasting features, namely high, thereby bringing the low-high contrast into line with the unraised/raised and oral/nasal contrasts. He is thus at variance with Welmers in saying that low tone is merely the absence of high tone just as unraised and oral vowels are merely vowels without the phonemes of raising and nasality respectively.

The writer recognises one of two contrasting features as positive and the other as negative where the following conditions are fulfilled:

(a) In morphophonemic alternation, some morphemes agree in certain contexts with neighbouring morphemes as to which of the two contrasting features they have.

(b) At least some of the morphemes which show the agreement in certain contexts occur in other contexts in which they do not show it, so that it is possible to decide on the direction of the agreement. If, for instance, unraised/raised agreement operated only in verbal prefixes, it would not be possible to decide if it was a matter of unraised vowels becoming raised in agreement with raised vowels or vice versa, as verbal prefixes never occur in any context which shows whether their vowels are unraised or raised when they are not subject to agreement; since, however, unraised/raised agreement sometimes operates between the end of one word and the beginning of the next (see pp. 30-1), it is possible to decide on the direction of the agreement, as it is possible to see

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1. Grammar, p. 9.

whether the agreeing vowels are unraised or raised when the words are not together. Since in fact they are unraised, the direction of agreement is from unraised to raised.

(c) The direction of agreement is always the same wherever it is possible to decide what the direction is.

Condition (a) is satisfied in Fante by four sets of contrasting features: (i) raising and absence of raising, (ii) orality and nasality, (iii) frontness and backness, and (iv) low tone and high tone. This has already been noted on p. 196, where the necessary references are given.

Condition (b) is satisfied for raising and the absence of raising in the way described in the statement of that condition. It is satisfied for orality and nasality by suffixes of the pattern //-CV// which have free variants of the pattern //-ˈC// (see pp. 87 and 97-9); those which show oral/nasal agreement with the preceding part of the word when they have the pattern //-ˈC// do not show it when they have the pattern //-CV//; they are then always oral, so that the direction of agreement is from oral to nasal. The condition is satisfied for frontness and backness by stems with final vowels (see pp. 82-5); those which show front/back agreement with a following suffix of the pattern //-ˈy// or //-ˈw// do not show it, obviously, when there is no suffix; they are then either front or back, so that the direction of agreement is sometimes from front to back and sometimes from back to front. The condition is satisfied for low tone and high tone by words with an initial vowel or homorganic nasal (see pp. 58-9); those in which the vowel or nasal shows high/low agreement with the final tone of the preceding word invariably have low tone on that vowel or nasal when there is no preceding word, so that the direction of agreement is from low to high.

Condition (c) is satisfied in the case of (i) raising and the absence of raising, as the direction of agreement is always from unraised to raised, (ii) orality and nasality, as the direction of agreement is always from oral to nasal, and (iii) low tone and high tone, as the direction of agreement is always from low to high. It is not, however, satisfied in the case of frontness and backness, as the direction of agreement may be either from front to back or from back to front.

If, then, when two contrasting features operate agreement and the agreement is always in the direction of the same feature, that attracting feature has positive status and the other negative, low tone has negative status just as have orality and the absence of raising.

Front and back forms of consonants and their relation to front/back agreement

Perhaps the best-known of the characteristics which distinguish Fante from the non-Fante dialects of the Twi-Fante language is that Fante usually has [ts,dz] instead of [t,d] before front vowel sounds, e.g. Twi [tɪ], F. [tsɪ] "hear", Twi [di], F. [dzi] "eat". The following parallel characteristics, though not unknown, are less well known:

(a) Fante usually has [ɲ] instead of [n] before front vowel sounds, e.g. Twi [nĩm], F. [ɲĩm] "know". This is less striking because [ɲ], unlike [ts,dz], does occur in Twi, e.g. Twi [ɲfɲ], F. [ɲĩn] "grow".

(b) Fante usually has [pj,bj,fj] instead of [p,b,f] before front vowel sounds other than [ɪ,i,ɪ̃,ĩ], e.g. Twi [pɛ], F. [pjɛ] "want", Twi [bɛ], F. [bjɛ] "proverb", Twi [fɛm], F. [fjɛ̃m] "borrow". [pj,bj,fj] do not occur in Twi, but are less well known than [ts,dz] because they have not been honoured with official orthographic recognition. Welmers claims that [pj,bj,fj,mj] occur also before [ɪ,i, ɪ̃,ĩ], but adds that the [j,j̃] is then scarcely audible[1].

In the present thesis these sounds are analysed as clusters with /y/, e.g. [tsɪ] /tyi/ "hear". The remaining sounds which are analysed as clusters with /y/ occur in Twi as well as Fante, e.g. Twi, Fante [cɛ] /kye/ "divide", [ɟe] /gyẹ/ "accept", [ɕɛ] /hye/ "put", [ɲi] /yị/ "remove".

Welmers denies that these front forms (or forms with /y/) are phonemic in the dialect he describes[2], but they certainly are phonemic in Confederation Fante as they occur not only before front vowels but also before back vowels which are back only by virtue of front/back agreement, e.g. Akuapem Twi [piu], Conf. F. [pjuu] "thicken", Akp. [puu], Conf. F. [puu] "spout".

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1. Grammar, p. 10. 2. Grammar, pp. 10-2.

It seems likely that there is a historical relation between the development of distinctive front forms of consonants and the development of front/back alternation. Firstly, the distinctive front forms have the function of compensating for the neutralisation, by front/back agreement, of the front/back contrast in the following vowel. Secondly, Fante, in which the distinctive front forms are most highly developed, also has the most highly developed system of front/back agreement. Thirdly, consonants which have distinctive front forms do not have them before front vowels in the first */CV/ nucleus of a stem with two */CV/ nuclei (see pp. 162-5), and front/back agreement never operates in the first */CV/ nucleus of such a stem.

Even if there is a historical relation, however, the chronological order of events is debatable, although it seems more probable that the development of front/back agreement stimulated the development of distinctive front forms of consonants.

It has not been previously recognised that consonants have back forms (or forms with /w/) which are the counterparts of the front forms (or forms with /y/). Most consonants, however, have their back form only before vowels which are non-back by virtue of agreement, e.g. [ɔbwɛɛɛ] "he hit it", but [ɔbɔɔkɔbʃnɑ̃] "he hit Kobina".

Final //y,w,ɣ,ɯ//

In this thesis all four of the consonants //y,w,ɣ,ɯ// are recognised as occurring finally in stems, although previous analyses have recognised only one of them, namely //w//.

Final //y// and final //w// correspond to what Christaller calls the "palatal and labial terminations of diphthongs" respectively:

> "One kind of diphthongs consists of a principal vowel and an accessory sound, heard whilst the mouth is closing again. This termination is palatal ([ɪ] or [i]), or labial (the semi-vowel [w], closer than [ʊ] and [u], or [u])."[1]

Now it was seen in the chapter on the structure of the morphemes (p. 153) that generally stem-final //w// occurs only as part of the same tone-bearing unit as the preceding vowel,

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1. Grammar, p. 3.

whereas stem-final //y// occurs only as a separate tone-bearing unit; it is therefore possible that the tonal independence of the "palatal termination" may have influenced Christaller's decision to treat it as a vowel rather than a semivowel. Other writers do not appear to have noticed the comparability of the "palatal and labial terminations".

Where Confederation Fante has final //y,w//, Cape Coast Fante, on which the Fante orthography is based, has [n], and Akuapem Twi, on which the Twi orthographies are based, has [ŋ]. Here, therefore, the differences in the analyses represent dialectal differences in the phonetic facts.

Vowel harmony and voice quality

Vowel harmony is the traditional term for what is called unraised/raised agreement in this thesis.

It was seen in the appendix on the status of low tone (pp. 204-6) that unraised/raised agreement was comparable with oral/nasal agreement and high/low tonal agreement in that it was operated by two contrasting features of which one had positive status and the other negative. Now each of these other two types of agreement has the effect of increasing the number of successive sounds which have a particular phonetic feature in common, the phonetic features concerned being nasality and high pitch; in unraised/raised agreement as described in this thesis, however, this is not the case (at least not always), as "raisedness" hardly qualifies as a phonetic feature. The unraised/raised contrast is one of aperture, but an unraised vowel can become raised in agreement with a raised vowel without necessarily having the same aperture, so that it is not possible to say that a particular aperture is to unraised/raised agreement as nasality is to oral/nasal agreement.

Berry[1] hears the unraised and raised vowels as having creaky and breathy voice quality respectively, and accordingly analyses the differences in aperture as secondary to the difference in voice quality. This analysis, if accepted, supplies the missing phonetic feature and makes it possible to say that breathiness is to creaky/breathy agreement as nasality is to oral/nasal agreement. The present writer finds this analysis very attractive, but, while the differences

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1. The Volta River Languages, pp. 18-9.

in aperture are obvious to him, he has difficulty in hearing the difference in voice quality. This, however, may well be due to the influence of his own linguistic habits, and he would not be surprised if instrumental evidence for the voice quality hypothesis were eventually produced.

The subjunctive affix and the nominal suffix

Both Christaller[1] and Welmers[2] describe a special form of the verb which is distinguished both by initial high tones (the present writer's subjunctive high tone affix) and by final high (or mid) tone (the present writer's nominal suffix of high tone). Their descriptions are, however, highly inadequate, especially in so far as they make no mention of the fact that the final high tone occurs at the end of the clause rather than at the end of the verb, so that it does not occur with a verb which has an object or complement (see pp. 104-10).

The tenses

The writer recognises only eight of the traditional ten[3] tenses; the reduction is accounted for as follows:

(a) The traditional "second future" is not a tense as it is merely the progressive ingressive used with the special meaning of impending action, e.g. /oribékásya/ "he is about to speak" (lit. "he-is-coming-to-speak"); the English 'he is going to speak' and the French 'il va parler' are comparable.

(b) The traditional "first imperative" and "second imperative" are complementary, the "first imperative" occurring only in the second person singular and the "second imperative" only in the remaining persons (see pp. 112-4 and 130-1). There is therefore only one imperative tense.

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1. Grammar, pp. 62-3. 2. Grammar, p. 56. 3. As in Christaller, Grammar, pp. 58-9.

APPENDIX II : SUMMARY OF THE RULES FOR THE CONVERSION OF THE MORPHOPHONEMIC TRANSCRIPTION INTO THE PHONEMIC TRANSCRIPTION

Summary of the elements of the morphophonemic transcription

1. The consonants.

(a)

p	py	pw	t	ty	tw	k	ky	kw	kwy
b	by	bw	d	dy	dw	g	gy	gw	gwy
m	m̆y	m̆w	n		n̆w				
f	fy	fw		sy	sw	h	hy	hw	hwy
						ñ	ñy	ñw	ñwy
			r				y	w	wy
							ÿ	ẅ	ẅy

All these consonants have their counterparts in the phonemic transcription; see the table on page 12.

(b) The same consonants plus //̣//(i.e. //p̣,pỵ//, etc.); see pp. 30-1, 35-6, 42-3, 46-7, 48, 50, 55-6, 76-7, 82, 86. These consonants do not have counterparts in the phonemic transcription, in which /̣/ occurs only with vowels.

(c) //y// plus //-// (i.e. //y̆//); see pp. 47-8. This consonant has no counterpart in the phonemic transcription, in which "/-/" does not occur.

2. The vowels.

i	i̯	ɪ	ɪ̯	u	u̯	ʊ	ʊ̯
e	e̯	ɛ	ɛ̯	o	o̯	ɔ	ɔ̯
		a	ä				

All these vowels have their counterparts in the phonemic transcription; see the table on p. 18.

3. The accentual features.

(a) The high tone //'//, which has the counterpart /'/ in the phonemic transcription; see p. 22.

(b) The glottal stop //ˀ//, which has the counterpart /ˀ/ in the phonemic transcription; see pp. 14, 20-1, 25-7, 39-41, 73.

4. The boundaries and breaks.

(a) The tone-bearing unit boundary //˙//, which has no written counterpart in the phonemic transcription since in that transcription the tone-bearing unit boundaries are fully determined by the consonants and the vowels; see pp. 19, 22, 43-6, 101-2. The tone-bearing unit boundaries are written as //˙// only when they occur between a vowel and a consonant which constitutes a tone-bearing unit; in all other cases they are determined by the context. The tone-bearing units of the morphophonemic transcription are as follows:

(i) Every //CVC//(not //CV˙C//) sequence which is not immediately followed by a //V//.

(ii) Every remaining //CV// sequence.

(iii) Every remaining //V// or //C//.

(iv) Every //:// (zero tone-bearing unit); see pp. 57-60, 66-70, 72-3, 96-7, 107, 115-9, 124-6.

The zero tone-bearing unit //:// has no counterpart in the phonemic transcription.

(b) The juncture //+//, which has the counterpart /+/ in the phonemic transcription; see pp. 14-6.

(c) The word boundary //space//, which has no counterpart in the phonemic transcription; see p. 28.

(d) The phrase boundary //‖//, which has no counterpart in the phonemic transcription; see p. 72.

(e) The pause //,//, which has the counterpart /,/ in the phonemic transcription; see p. 22.

(f) The sentence boundary //.//, which has the counterpart /./ in the phonemic transcription; see p. 21.

Summary of the rules for the conversion of the morphophonemic transcription into the phonemic transcription

The rules must be applied in the order in which they are given. Usually the application of a rule results in a partially converted transcription to which subsequent rules must be applied before the wholly converted transcription is finally obtained; partially converted transcriptions are enclosed in single oblique strokes and double inverted commas, e.g. "/obóhwyé ábufírá˙ń/". All examples given in partially converted transcription are repeated in fully converted transcription.

Except where otherwise indicated, the circumstances in which a rule applies are stated in terms of the partially converted transcription obtained by the application of the preceding rules, and not in terms of the unmodified morphophonemic transcription.

1. Tones at the phrase boundary //|//.

If the last tone-bearing unit before a phrase boundary //|// has low tone and is not immediately preceded by a unit with high tone belonging to the same word, add /ˈ/ to it, e.g.

//bira |bɛ́far//	"/birá |bɛ́far/"
/birábɛ́rá²/	"come and get it" (lit. "come come-take")
//o̩wu̩ |a²//	"/o̩wú |a²/"
/o̩wá̩a²/	"if he dies"

The analysis is discussed on pp. 70-2.

2. Inter-word tonal agreement.

(a) If (i) the first tone-bearing unit of a word containing at least two units is a //V// or //N̄//, has low tone, and is not immediately followed by a //://, and (ii) the last tone-bearing unit of the preceding word has "/ˈ/", add /ˈ/ to the //V// or //N̄//, e.g.

//obɔ́hwyé abufírá·ń//	"/obɔ́hwyé ábufírá·ń/"
/obɔ́hwyáábu!fírán̄/	"he will look at the child"
//obɔ́hwyé mbufírá·ń//	"/obɔ́hwyé m̀bufírá·ń/"
/obɔ́hwyém̀bu!fírán̄/	"he will look at the children"

If the following tone-bearing unit has //ˈ//, insert /!/ before it, e.g.

//obɔ́twɔ́ nsyā́//	"/obɔ́twɔ́ ń!syā́/"
/obɔ́twɔ́ń!syā̀/	"he will buy liquor"

The analysis is discussed on pp. 58-60.

(b) If (i) the last tone-bearing unit of a word has low tone, and (ii) the first tone-bearing unit of the following word is //:// and has //ˈ//, add /ˈ/ to the unit with low tone, e.g.

//mbufírá pii ˈhwyeˈn//	"/mbufírá pii ˈhwyeˈn/"
/mbufírápi!ˈhwyen/	"many children look at him"

If the preceding tone-bearing unit has //ˈ//, insert /ꜜ/ after it, e.g.

//nc̣c̣gya ꜜhwyeˈn//	"/nc̣c̣ꜜgyá ꜜhwyeˈn/"
/nc̣c̣ꜜgyáhwyen/	"his father looks at him"

The analysis is discussed on pp. 68-70.

3. Prepausal tones.

(a) If the last tone-bearing unit before a pause has //ˈ//, add /ˇ/ to it, e.g.

//orikyiré//	
/orikyirěˇ/	"he is showing it"

(b) If the last tone-bearing unit before a pause has low tone and is immediately preceded by a unit with //ˈ// belonging to the same word, add /ˈ/ to it, e.g.

//orikásya//	
/orikásyáˈ//	"he is speaking"

The analysis is discussed on pp. 60-63.

4. Consonants and vowels.

(a) If a word (i) contains no "/C/" and only one "/V/", and (ii) is immediately preceded by a word of which the last non-zero segment is nasal, or of which the last non-zero segment is "/y/" and the second-last "/a/", add /˜/ to the "/V/", e.g.

//onwúꜜmíˈýˈ ꜜaʔ//	"/onwúꜜmíˈýˈ ꜜã/"
/onwúꜜmíããʔ/	"if he had drunk it"
//okáꜜáˈýˈ ꜜaʔ//	"/okáꜜáˈýˈ ꜜãʔ/"
/okáꜜfããʔ/	"if he had touched it"

Similarly, if a word (i) contains no "/C/" and only one "/V/" and that "/V/" is "/a/", (ii) is immediately followed by a pause, and (iii) is immediately preceded by a word of which the last "/V/" or the last "/C/" has "/ˌ/", add /ˌ/ to the "/a/", e.g.

//ǫ̣yǫ̣ǫ́ ꜜaʔ//	"/ǫ̣yǫ̣ǫ́ ꜜą̣ʔ/"
/ǫ̣wyą̣ą̣ą̣ʔ/	"when he finishes"

The analysis is discussed on pp. 54-56.

(b) If a word consists of or contains a "/CV/" sequence, put it into (i) its unraised preconsonantal form, (ii) its prevocalic form, or (iii) its prepausal form, as

given in the table on pp. 51-54, according to whether it is followed (i) by a word beginning with a consonant, (ii) by a word beginning with a vowel, or (iii) by a pause.

If the last "/V/" or sequence of adjacent "/V/"'s have no "/ˌ/" and a word beginning with a "/(H)Ç/" sequence follows, /ˌ/ may optionally be added to the last "/V/" or to each member of the last sequence of adjacent "/V/"'s as the case may be; see pp. 30-31.

If the base form ends with a single or double back //V// and that is replaced in the prevocalic form by a single or double non-back "/V/", add /w/ or /ẅ/ to the preceding "/C/" (according to whether that "/C/" is oral or nasal) provided there is no /w/ or /ẅ/ already there, e.g.

//ɔ́bo ẹ̃ỵ̨ɪnɑ́//	"/ɔ́bwẹ ẹ̃ỵ̨ɪnɑ̃́/"
/ɔ́bwẹẹ̃ỵ̨ɪnɑ̃́/	"he breaks a waterpot"

Similarly, if the base form ends with a single or double front //V// and that is replaced in the prevocalic form by a single or double non-front "/V/", add /y/ or /ỵ/ to the preceding "/C/" provided there is no /y/ or /ỵ/ already there, e.g.

//ọfi akyĩmfu//	"/ọfya akyĩmfu/"
/ọfyaakyĩmfu/	"he is from Saltpond"

The analysis is discussed on pp. 32-34.

5. Single and double prepausal //://.

(a) Where single or double prepausal //:// is present, delete any final "/ʔ/", e.g.

//obésyáy://	"/obésyá:/" (via "/obésyáʔ:/")
/obésyá/	"Will he dance?"
//ẹ̃ɲɑ̃ nfyɪr:://	"/ẹ̃ɲɑ̃ nfyɪ:/" (via "/ẹ̃ɲɑ̃ nfyɪʔ::/")
/ẹ̃ɲɑ̃ nfyɪi/	"Have you seen his wife?"

(b) If a prepausal word has final //CV́ʸ:// in its base form, its phonemic form is as if there were no //-// in the base form, e.g.

//wẹ́ẹbwẹ́ʸ://	"/wẹ́ẹbwẹ́ẹ:/"
/wẹ́ẹbwẹ́ẹ/	"has he opened it?"
Cf. //wẹ́ẹbwẹ́ʸ//	"/wẹ́ẹbwẹ́/"
/wẹ́ẹbwẹ́/	"he has opened it"

The significance of //-// is shown in the table on pp. 51-54.

(c) If a prepausal word has final "/CV::/", double the "/V/", but let only the first of the resulting two "/V/"'s have /ˊ/, e.g.

//ɕkwya nfˊˑhsyáː://	"/ɕkwya nfˊˑhsyáa:/"
/ɕkwya!nfhsyáa/	"have you cut his hand?"
//ɕhɳ nfyíːː://	"/ɕhɳ nfyíi::/"
/ɕhɳ!nfyíi/	"have you seen his wife?"

The analysis is discussed on pp. 63-68.

6. Regular automatic alternation.

Adjust the transcription in accordance with the regular automatic alternation described on pp. 23-27.

7. Elimination of zeros.

(a) Add /ˊ/ to the final "/C/" of each tone-bearing unit of the pattern "/CVC/" which has "/ˊ/" on the "/V/", and then remove all "/ˊ/"'s, e.g.

//ɓˊˑýkfyká:ˊˑyˊˑʔ//	
/ɓýkfykáaíʔ/	"he has not read it"

The analysis is discussed on pp. 19-22, 43-46, and 101-2.

(b) Add /ˋ/ to the "/V/" or "/C/" preceding any prepausal "/ʔ/" (which can arise only by the application of rule 3(a)), and then remove all "/:/"'s (together with any "/ˊ/"'s or "/ˋ/"'s they may have), e.g.

//ɓríkyírɓˊˑwʔ//	
/ɓríkyírɓɓ/	"he is writing" (in subjunctive)

(c) If a word ending with "/m/" or "/n/" is followed by a word beginning with "/b/" or "/d/" respectively, insert /+/ between the words (see pp. 14-16), and then remove all spaces and "/|/"'s, e.g.

//oswūˊˑm :búˑswúˑmʔ//	
/oswūm+búˑswúm/	"he serves the god"

(d) Remove all "/ˌ/"'s which are not written with "/V/"'s.

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